



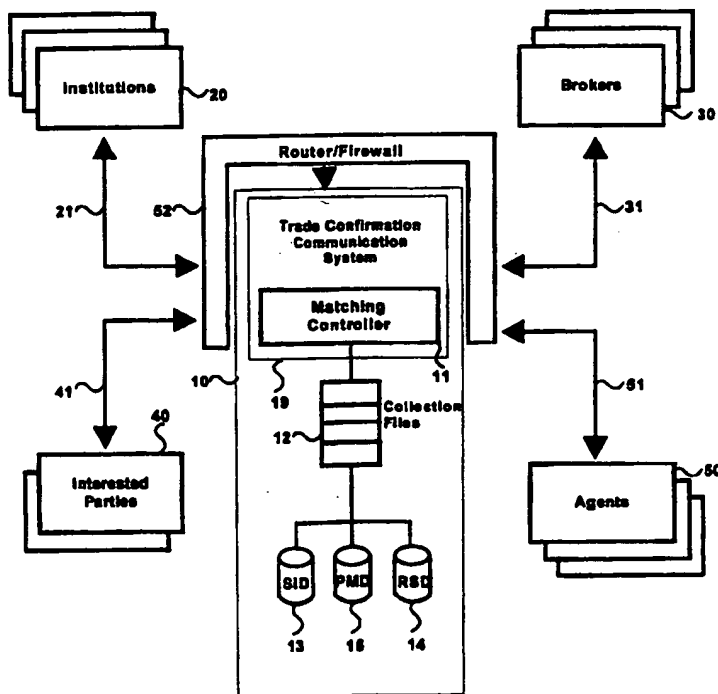
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(54) Title: ENHANCED MATCHING APPARATUS AND METHOD FOR POST-TRADE PROCESSING AND SETTLEMENT OF SECURITIES TRANSACTIONS

(57) Abstract

A computer-based apparatus and method (10) for the storing matching and communicating of post-trade settlement information for securities trades among institutional investor (20), broker-dealers (30), agent (50) and interested parties (40) using an enhanced matching process (11). The traditional sequence of communications for trade settlement involving notices of order execution, institutions allocations instructions, confirmations and affirmation is replaced by a system (11) which matches the notice of order execution and the institution allocation instructions across designated fields within these records. Upon generating a match between a notice of order execution (or the last of a series of notices of order execution) and an institution allocation instruction. The system and method (10) use in an exemplary embodiment standing instructions, disclosure, calculation, default procedures and trade information from the settlement parties to generate either a match affirmed confirmation or a match confirmation to effect trade settlement.



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ENHANCED MATCHING APPARATUS AND METHOD FOR POST-TRADE PROCESSING AND SETTLEMENT OF SECURITIES TRANSACTIONS

5 Field of the Invention

10 The present invention relates to a system for the settlement of securities trades, and more particularly, to an apparatus and method for receiving, storing, matching and communicating post-trade securities settlement information to facilitate trade settlement.

Background of the Invention

15 The settlement of securities trades -- i.e., trades involving stocks, bonds and other forms of equity and debt -- is a process that involves different participants such as institutional investors, broker-dealers, agents, and interested parties. An institutional investor ("institution") places a trade order with a broker-dealer to make a securities trade on behalf of itself or one of its customers. An institution is generally an investment manager, mutual fund, investment department of an insurance company, 20 or trust department of a bank that has been granted discretionary trading authority by the institution's customer (e.g. a pension plan, corporation or endowment fund). A broker-dealer ("broker") executes buy and sell orders for the institution and receives or delivers securities and funds to settle the trade. In certain instances, a clearing broker can act as an agent for the broker in the settlement process and be responsible

for receiving or delivering securities and funds on the broker's behalf. An agent ("agent") acts as an agent for the institution in the settlement process and is responsible for receiving or delivering securities and funds on behalf of the institution or its customer. In many instances, a clearing agent (generally, a custodian bank) acts for the agent in the settlement process and is responsible for receiving or delivering securities and funds on behalf of the agent. For securities settling outside of the "home market", the clearing agent is often referred to as a "global custodian." In some cases, agents and clearing agents act through other agents or custodians in order to settle a trade. An agent or custodian that acts for a clearing agent is considered to be a "subcustodian." An interested party ("interested party") is any entity designated by the institution as interested in the transaction, such as a correspondent bank or plan sponsor. Each participant in the settlement process (other than an interested party) must, among other things, communicate information about the trade to and from the other participants and arrange for the transfer of funds and securities to settle the trade.

The explosive growth of the global securities markets places additional pressure on the settlement participants to ensure that trade settlements proceed with speed and accuracy. Today, trading of securities has reached unprecedented volumes. The increasing volume and speed with which securities are traded has necessitated that governing bodies place standards on financial institutions and other parties to settle trade accounts within mandated time periods. Over the years the mandated time periods for trade settlements have been shortened. In 1995, the Securities and Exchange Commission ("SEC") mandated that securities trades must be settled within three business days of the trade date, a limit known as "T+3". Previously, trades had to be settled within five business days of the trade, or "T+5". At some point in the future this trading period may well decrease to one business day settlement, "T+1," or even same day settlement, "T+0". There is a need for systems that can facilitate rapid trade settlement communication with great accuracy in such shortened time periods.

Currently, trade settlement involves a set of communications by which the parties to the trade send and receive a series of messages that lead to settlement. Institutions

typically trade in large block amounts. The securities from a block trade are then allocated to different customer accounts by an institution, with each account often involving different agents and interested parties. Institutions can also place a single trade order for an individual customer.

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When a trade is executed by a broker (on a trade order placed by an institution, either for a block or single trade order), current practice directs the broker to report to the institution by way of a communication, such as a trade confirmation (which brokers use for single trades to permit the trade to be immediately affirmed) or a notice of order execution ("NOE") (which brokers use to report the execution of the trades which cannot be yet confirmed). If the trade is a block trade to be allocated among different customer accounts, for example, the trade cannot be confirmed until the broker receives information to allocate the trade among the various customer accounts. Brokers may have to execute multiple trades to fill one order, resulting in multiple NOE's being sent to the institution for a particular trade order. For trade orders covered by multiple NOE's, the broker reports cumulative information about the trade order (such as the average price per share) and information about the individual trade executed within the same NOE.

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Upon the receipt of an NOE that completes an order, the institution returns a communication which conveys to the broker all trade allocations needed to complete the settlement process. If the broker agrees with the allocation information, the broker then issues a trade confirmation. To issue a trade confirmation to the institution, the broker includes information which is needed to generate a legal confirmation (as required for example by SEC Rule 10b-10 under the Securities and Exchange Act of 1934). This confirmation is typically communicated to the institution, the institution's agent and a number of interested parties, such as the underlying customer or an entity providing performance measurement for the underlying customer.

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Upon receiving the broker trade confirmation, the institution continues the settlement process with a communication to affirm the trade. The affirmation step can be

completed by the institution, or the power to affirm can be delegated by it to its agent or an interested party. To affirm, the institution receives the trade confirmation communication and then compares it to data that is stored in its own records. If in agreement, the institution sends an affirmation and each party named in the confirmation typically receives the affirmed confirmation, which includes settlement instructions that agents and brokers use to settle the trade.

The process of settlement communications currently employed -- NOE's, allocation instructions sent by the institution, confirmations and affirmations -- ensures a high level of accuracy within the trade settlement procedure. The communications sent back and forth enable each settlement party to check records and confirm the existence of the trade and settlement details before the trade is settled.

Maintaining data accuracy and reliability in trade settlement is crucial. The system of communications -- NOE's, allocation instructions, confirmations, and affirmations -- establishes a level of redundancy which helps to ensure accuracy and party agreement. However, this system requires sufficient time for the parties to review and verify the incoming communications and in practice has created difficulty for the settlement parties in their meeting the T+3 trade settlement requirement. Even with the widespread use of computers, the settlement parties execute the sequence of communications using a disparate collection of telephone calls, telexes, cable and wire transmissions, faxes and hard-copy messages. This process takes considerable time to complete its function. Any new system that would offer advantages in speed over the generally used system of communications must still ensure accuracy and reliability because the cost of an incorrect or failed trade settlement is high. For any failed trade, the parties must find and rectify the reason for the failure.

Computer systems have been developed for other areas of securities trading, such as those described in U.S. Patents Nos. 4,346,442, 4,376,978 and 4,774,663 for aspects of a cash management system for securities brokerage firm, U.S. Patent No. 4,949,248 for aspects of a network for sharing information and programs, and U.S. Patents Nos. 4,674,044, 4,823,265 and 5,101,353 which are directed to systems for trade execution.

Computer technology has also been applied to trade settlement. However, typically all such systems maintain the prior art sequence of communications between the parties in terms of NOE's, allocation instructions, confirmations and affirmations. One system known as "Alert" and developed by Audex Systems of Wellesley, Massachusetts is designed to facilitate the flow of information in the communications between the institution and broker. The Alert system maintains a centralized database of institution delivery instructions (instructions for the delivery of funds or securities that the institution applies for each of its customer accounts). When the institution communicates a trade allocation instruction, the broker can access information in the central database in its preparation of the confirmation. The Alert system, however, does not change the sequence of communications between broker, institution, agents and interested parties.

U.S. Patent No. 5,497,317, assigned to Thomson Trading Services, Inc. also follows the sequence of NOE, institution instruction, confirmation and affirmation communications. It provides a database configuration to facilitate those communications, but takes no steps to shorten the number of communications needed to settle a trade.

The Depository Trust Company ("DTC") developed a system known as the Institutional Delivery ("ID") System in the early 1970's. The ID System provides a multi-step, post-trade process that is based on the system of NOE, institution allocation instruction, confirmation and affirmation communications, but provides a central computer hub which collects information and generates the confirmation communication. With the ID System, a broker can send an NOE to an institution after executing each buy/sell order. Upon receipt of the NOE, the institution returns an allocation instruction. Upon receipt of the allocation instruction, the broker submits to the ID System trade detail information (such as issue, quantity, price and date). The ID System combines trade information with information from other sources to issue a confirmation which gives trade details, settlement information and other required data. The ID System makes that confirmation available to the institution, the broker, the agent and any other interested parties to the trade. The

institution then acknowledges or affirms the confirmation by sending a message to the ID System. In a final step of the post-trade settlement process, the ID System sends an affirmed confirmation to each party. Upon the receipt of the affirmation confirmation, the trade can settle. The complete confirmation process, in which the broker transmits trade data and the ID System generates a confirmation, can take as many as five distinct communications.

DTC has recently implemented a computer process that eliminates the affirmation step in the trade confirmation process while maintaining the reliability previously achieved by the earlier NOE, allocation instruction, confirmation and affirmation communications systems. Instead of passing the broker confirmation to the institution and waiting for an institution's affirmation, the more current ID System matches trade data received from the broker for inclusion in a confirmation with institution instructions received from the institution, e.g., instructions input after NOE or at the time that the trade occurred. If the input from broker and institution agree, the system produces a "matched confirmation" which can, if the institution is also the affirming party, replace the affirmation by producing a matched affirm confirmation.

Further streamlining of the above communication steps involved in the trade settlement process would facilitate more rapid trade settlement without sacrificing accuracy. However, existing systems rely on the redundant exchange of communications to verify the information exchanged in trade settlement.

It would be an advance in the field if a new system could be developed to further reduce data redundancy while still providing sufficient data to settle the trade reliably and accurately. What is desired, therefore, is a system for improving the speed, efficiency, security and control of the current post-trade communication processing and settlement systems by more advanced matching techniques.

Summary of the Invention

Accordingly, the present invention provides an enhanced matching apparatus and method to effect trade settlement in fewer steps than the prior art while maintaining the same level of reliability. The present invention matches data fields in a specially constructed NOE with data fields in a specially constructed institution instruction to generate either a "matched confirmation" or a "matched affirm confirmation." In this system, a matched confirmation or matched affirm confirmation can be automatically generated by the computer system upon a correct match. Thus, the subsequent steps of a broker or computer-generated confirmation and then affirmation are no longer needed. The present invention increases speed and lessens the risk of trade failure by insuring that the trades are settled within the mandated time periods for completion of settlement using fewer steps than existing systems. The system also decreases opportunities for computer or human errors, because the matching system replaces the back and forth communication in the confirmation and affirmation (where with every communication there may be a chance for human and computer error).

According to an exemplary embodiment of the present invention, in the first step after trade execution, the broker sends an NOE to a central computerized trade confirmation communication system. The system attempts to match the NOE against an existing institution instruction. If no match can be found, the computer system copies the NOE information to a pending match database and optionally communicates the NOE to the institution. Upon receipt of an NOE which agrees with the institution's records, the institution sends an allocation instruction to the system. The system then attempts to match specially designated data fields of the institution instruction to the data fields in the stored pending NOE. If all the information contained in the data fields are properly matched (according to a matching procedure described below), the system then creates a confirmation (such as a "matched confirmation" or a "matched affirmed confirmation") using information found in the allocation instruction and NOE and, in one exemplary embodiment, information derived from a database source comprising a multitude of tables. The system then

makes this confirmation available to the institution, agent, broker and any interested parties to the trade so that the parties can effect settlement.

5 When the broker transmits multiple NOE's for the same trade order (because multiple trade executions are required for that trade order), the system will match an institution allocation against the final NOE for that trade order. The final NOE for the series of executed trades will contain sufficient cumulative information to allow a match to be possible.

10 When compared against the prior art trade confirmation communication systems (with or without matching) the present invention in the exemplary embodiment shortens the sequence of communication required by as many as one or two communications. This saves processing time and speeds the settlement process.

15 The present invention and its features and advantages will become more apparent from the following detailed description with reference to the accompanying drawings.

Brief Description of the Drawings

20 Fig. 1 is a block diagram showing an enhanced matching communication system for post-trade processing and settlement of securities trades according to an exemplary embodiment of the present invention.

25 Fig. 2 is a flowchart showing an exemplary process flow of an NOE matching process in an enhanced matching communication system for post-trade processing and settlement of securities trades.

30 Fig. 3 is a flowchart showing an exemplary process flow of an institution instruction matching process in an enhanced matching communication system for post-trade processing and settlement of securities trades.

Fig. 4 is a flowchart showing an exemplary process flow for generating a confirmation in an enhanced matching communication system for post-trade processing and settlement of securities trades.

5 Fig. 5 depicts a database storage structure for a Standing Instructions Database (SID) and a Related Storage Database (RSD) which could be employed in one embodiment of the enhanced matching communication system for post-trade processing and settlement of securities trades.

10 Fig. 6 depicts an exemplary relational database storage structure for a Pending Match Database (PMD) of the enhanced matching communication system for post-trade processing and settlement of securities trades according to an exemplary embodiment of the present invention.

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Detailed Description of the Invention

A. Overview, Hardware and Software

20 Fig. 1 shows an overview of an exemplary communication system for enhanced matching used during post-trade settlement for trade confirmation. A computer 10 comprises a trade confirmation communication system 19, having a set of programmed elements that enables each of the settling parties, institution(s) 20, broker(s) 30 (here including clearing brokers), agent(s) 50 (here including clearing agents) and interested party(ies) 40 to exchange electronic communications in trade settlement. Within the trade confirmation communication system 19 (or as a separate add-on component for it) there is also a matching controller 11 that executes trade confirmation functions for matching. A plurality of collection files 12 within the computer 10 facilitates the processes of the matching controller 11. The computer 10 also comprises and provides a platform for a Pending Match Database ("PMD") 15 (which is used in the enhanced matching process described below) and additionally in

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the exemplary embodiment, additional database structures for generating a confirmation such as a Standing Instructions Database ("SID") 13 and a Related Storage Database ("RSD") 14 (used with SID 13) each comprising a plurality of databases. In the exemplary embodiment the trade confirmation communication
5 system 19 allows the institutions 20, brokers 30 and agents 50 to input data into the database structures before the time of trade settlement. During trade settlement, the system derives the data from the various database tables to generate a confirmation.

As will be explained in further detail below, the computer 10 uses the elements
10 described above to match trade communication input from the parties and create trade confirmations. In brief, the process in the exemplary embodiment is as follows.

After trade execution, a broker 30 that has made a trade on behalf of an institution 20 transmits an NOE concerning that trade to the computer 10. The NOE is stored in a
15 collection file 12 (for verification) and then moved into the PMD 15. The computer 10 also transmits a copy of the NOE to the institution 20 (identified in the NOE). Upon receipt of the NOE, the identified institution 20 can respond by transmitting an institution allocation instruction (an "II" for Institution Instruction) that provides customer account allocation information concerning the trade. The II message is
20 stored in the collection file 12 (for verification) and then moved to the PMD 15. The computer 10 will attempt to match the II with an NOE located in the PMD 15. The computer 10 will make the match upon a set of predetermined data fields within each NOE and II record. If the broker 30 must execute a number of trades to fulfill the institution's trade order, the broker 30 may transmit a number of NOE's for the
25 particular trade order. In such a situation the system of the present invention will match the last NOE (containing the full cumulative information for the trade orders) to the II of the institution 20.

With the present invention, it is also possible (although it may not be the usual case)
30 that the institution 20 will transmit an II to the computer 10 before the broker 30 transmits an NOE. Thus, in addition to storing and transmitting an NOE as described

above, the computer 10 will also attempt to match an NOE at the time it is input to the II's stored in the PMD 15.

5 If a match is found either for a single NOE or the last of a series of NOE's (according to a matching procedure outlined below) the computer 10 generates a matched confirmation using the data found in the NOE, II and related data found in SID 13 and the RSD 14.

10 If the affirming party to the trade is the institution 20, the computer 10 will generate the confirmation communication as a matched affirmed confirmation. The computer 10 will make available this matched affirmed confirmation message to all parties, broker 30, institution 20, agent(s) 50 and interested party(ies) 40. If the computer 10 is operated by an entity which also operates a settlement system, the computer 10, if so authorized by the delivering party, will also execute the settlement of the trade as
15 described below.

When instruction databases such as SID 13 and the RSD 14 are employed, the computer 10 receives information concerning institutions 20, brokers 30, agents 50 and interested parties 40 before the trade settlement process, such as before the broker
20 30 transmits the NOE. That information is stored in SID 13 and the RSD 14 in the present embodiment. In particular, broker 30 inputs trade information necessary for preparation of confirmations, known as broker confirmation information and the agent 50 inputs information known as agent confirmation information. In the exemplary embodiment, the computer 10 amasses the trade confirmation information through a
25 number of relational database lookups.

The computer 10 includes one or more processors ("CPUs") coupled to random access and online storage memories. The processors execute programmed instructions, access data from the memories, manipulate the data according to the
30 programmed instructions and perform the other processing functions. The computer 10 also comprises an operating system which facilitates the functions of the matching controller 11, the trade confirmation communication system 19 and maintenance of

the databases. In an exemplary embodiment, an IBM ES 9000 mainframe is suitable as the computer 10, operating with a MVS operating system. DB2 database software is suitable for implementing and maintaining the SID 13, RSD 14 and PMD 15 databases in an exemplary embodiment. The programmed elements of the trade confirmation communication system 19 and the matching controller 11 can be effected, for example, in the COBOL II computer language. The computer 10 can execute those functions using either synchronous or asynchronous tasking.

Communications between the computer 10 and the settlement parties are effected over communication links 21, 31, 41, and 51. In Fig. 1, each one of a plurality of institutions 20 (one or more) has a link to the computer 10, such as link 21. Each one of a plurality of brokers 30 has a link to the computer 10, such as link 31. Each one of a plurality of agents 50 has a link to the computer 10, such as link 51. Each one of a plurality of interested parties 40 has a link to the computer 10, such as link 41. These communication lines can be telephone wires. However, in alternative embodiments they can also be any means of communicating electronic transmissions, including both hard-wired and wireless methods. Each institution 20, broker 30, agent 50 and interested party 40 accesses its respective communication link 21, 31, 51, and 41 by a computer terminal (not shown) at a remote institution 20, broker 30, agent 50 or interested party 40 location. The computer terminals in an exemplary embodiment are computers having a 486 Intel processor (or the equivalent or better) and operating at 66 MHz with DOS 3.3 or higher and/or a Windows operating environment, 8 Mb of RAM, 1 Meg processor memory and a 9600 or higher baud modem. A communication software package resident on each PC terminal (not shown) provides an interface for transmitting communications to the computer 10 and receiving communications from it. The communication software package, such as a package known as EZTYM and available from the Software Corporation of America, also allows the settling parties input and to access data from SID 13. The computer terminals may (but do not have to) be linked to other computer systems such as the back office computer systems of the institutions 20, brokers 30, agents 50 or interested parties 40.

Security for the computer 10 is achieved by a firewall routing system 52, such as (in an exemplary embodiment) an IBM RS 6000 firewall. The firewall routing system 52 couples the communication links 21, 31, 41 and 51 to the computer 10. In an exemplary embodiment, the communication interface between the institution 20,
5 broker 30, agent 50 and interested party 40 computer terminals ("PC's") and the computer 10 is achieved by a 3745 communications Systems Network Architecture ("SNA") communication controller using Network Control Protocol ("NCP") software from IBM. It is to be understood that the present invention is not to be limited to either the specific computer hardware or software listed above or the
10 specific type of computer interface and communication. Other combinations of computer hardware and communication links are equally suitable for implementing the present invention.

15 **B. Data Input For Standing Instructions Database (SID) and Related Storage Database (RSD) Tables**

Before trade settlement, institutions 20, brokers 30 and agents 50 can enter information into databases which can be used during trade settlement to derive
20 information for a confirmation. In the exemplary embodiment SID 13 and the RSD 14 act as repositories of information relating to the settling parties, their customer accounts and trade settlement. Institutions 20, brokers 30 (including clearing brokers) and agents 50 (including clearing agents) can enter information. Although many different types of databases and relational database structures would be suitable, both
25 SID 13 and the RSD 14 in the exemplary embodiment comprise a number of databases each comprising a plurality of database tables. Data (including settlement instructions) for the confirmation may be obtained from data contained in the II and NOE, and in addition derived from various database lookups using multiple queries to the different tables. These confirmation data queries may based on data in various
30 fields in the II as well as on the results of lookups to the SID 13 databases. To input data before trade settlement, the communications software located on the computer terminals at each settlement party location provides a graphic interface and prompts to

collect the relevant data such as the data described below. The communications software also contains a set of program modules to interface with the computer 10 (through the firewall) and transmit the data to it. On the computer 10, database management routines within the trade confirmation communication system 19 make the relevant updates to SID 13 and RSD 14 when communications from institutions 20, brokers 30 or agents 50 arrive. Referring to Fig. 5, exemplary database tables within SID 13 and the RSD 14 include:

Standing Instruction Database Tables:

Institution Information Table(s) 61
Broker Information Table(s) 62
Agent Information Table(s) 63
Broker/Institution Link Table(s) 64
Broker Confirmation Information Table(s) 65

Related Storage Database Tables:

Entity Master Table(s) 66
Entity Table(s) for Names and Addresses ("ETNA") 67

Each data structure is discussed below. In addition, the uses of databases and data types such as SID 13 and RSD 14 databases, as well as the functions of data input and trade settlement are also described in the following DTC publication, expressly incorporated herein by reference: Institutional Delivery System User Manual; which is also published as Participant Operating Procedures--Section M: Institutional Delivery System.

Institution Information Table(s) (61, Fig. 5): In the exemplary embodiment, institutions 20 enter information concerning both the institution itself and the accounts it maintains for itself and its customers. The tables within this data structure could include information such as: 1) institution information (e.g., processing indicators and indicators designating business arrangements of the institution 20); 2) the institution's account information; 3) the institution's and/or customer's agent

information; 4) affirming party information; 5) interested party information; 6) broker lists; 7) settlement amount tolerances; and 8) matching options. The tables organize the data for example as it applies to the institution 20 or its customer accounts.

5 The institution 20 specifies each account with a unique identification number. For each of the institution's accounts, specific information can be entered into and later obtained through SID 13, such as: (a) the institution's internal account number for the customer's account; (b) the institution's internal account name for the customer's account (which e.g. would default to the institution's name when the account name
10 was not input); (c) a system number for the customer's account; (d) a U.S. taxpayer identification number (a Social Security or other taxpayer identification number) for the customer; and (e) a bank identifier code ("BIC") number for the customer or account. The computer terminals at the institution's location include a PC interface that prompts the institution 20 to enter such customer account information.

15 In addition to customer account information, institutions 20 also enter the agent information for each customer account, such as: (a) an identification number for the agent 50; (b) the agent's internal account number assigned by the agent 50 to that customer account; and (c) the agent's internal account name for that customer
20 account. The agent information obtained is similar to customer information described above. The PC interface at the institution location requests the agent information following the method described above for obtaining customer information. However, in addition, the PC interface also prompts the institution 20 to input certain settlement information regarding the agent 50, which can be used to derive from agent-related
25 data tables specific settlement instructions to be used in different situations. The settlement instructions provide, for example, the appropriate clearing agent of the agent 50 when more than one exists. For example, the agent 50 might use one clearing agent for DTC eligible trades, another when the settlement location is a Federal Reserve Bank and a third for international settlements. Detailed information
30 concerning agents 50 and their settlement procedures is contained in the Agent Information Table(s) 63 described below. In the exemplary case, settlement information can be extracted from the agent database table(s) using a combination.

of information in the II and information in the Institution Information Table(s) 61.

Thus agent settlement instructions may be derived through a set of database look-ups.

5 In addition to the customer and agent information, the institution 20 can input and store information concerning affirming parties, interested parties 40 and brokers 30. The affirming party information contains information regarding the affirming party type (e.g., institution 20, agent 50, interested party 40), and the affirming party identification number. The interested party information contains information regarding the interested party, such as identification number, interested party internal
10 account number and interested party internal account name. The broker lists contain information regarding the identification of brokers 30 that act as executing brokers on behalf of the institution 20 or a specific customer.

To select the matching option, the institution 20 can set a matching indicator (y/n)
15 which shows whether the institution 20 authorized a match for a particular account. If the institution 20 has elected to match an II to a broker NOE, the institution 20 can set tolerances for a settlement amount so that an exact match on this field is not required to generate a matched or matched affirmed confirmation. To set a tolerance in the exemplary embodiment, the following information will be entered for each currency:
20 (a) currency code; and (b) either a tolerance value for the total settlement amount of the trade order, as expressed in an absolute amount of an appropriate currency (e.g., a difference \$50.00 per trade in U.S. dollars between an II and an NOE), or a tolerance value as it relates to total settlement amount, expressed as a percentage (e.g., \$10.00 per \$100,000 of total settlement in U.S. dollars). This information can be entered for
25 all customer accounts of the institution 20 or individually at the customer account level. The institution 20 may also elect not to match for specific settlement locations and for specific security types within those locations (e.g., match everywhere except for trades settling in the U.K.; match every type of security except for equity trades within the location). Thus, the matching options within the Institution Information
30 Table(s) 61 provide indicators to set such matching tolerances and preferences.

Broker Information Table(s) (62, Fig. 5): Brokers 30 (and clearing brokers) enter information to specify information used by the broker and clearing broker for trade settlement of the broker's accounts. The tables in this data structure organize the data for example as it applies to the broker, the clearing broker and individual customer accounts. The information designates for example which clearing brokers, if any, should be used for settlement according to location (depository or country) and security type. Brokers 30 enter information for each settlement scenario, such as: 1) settlement location (codes specifying countries or depositories to be used for trade settlement); 2) security types (codes identifying the security being traded, e.g., equities, corporates or eurobonds); 3) clearing broker number (an identification number of the clearing broker used to settle); and 4) clearing broker internal account number (broker's account number at the specified clearing broker).

The trade confirmation communication system 19 also provides that, at the customer account level, a broker 30 can link its internal account number for a specific account to a corresponding institution internal account number (found within the account records of the Institution Information Table(s) 61). This allows for the extraction from SID 13 of information previously entered by the institution 20 in SID 13 in lieu of requiring that the broker 30 enter all such customer information on trade input. The computer 10 stores the link information in the Broker/Institution Link Table(s) 64. To permit NOE's to be matched to II's, the inputting broker 30 sets a match indicator (y/n) for the specific customer account indicating that it agrees to match with the institution's corresponding customer account. The Broker/Institution Link Table(s) 64 allows the broker 30 to see whether the institution 20 has selected a matching option for that account.

Agent Information Table(s) (63 Fig. 5): Agents 50 (and clearing agents) enter information to specify settlement instructions for trade settlement. An agent 50 will specify settlement instructions that it will use when settling a trade of a particular type of security at a particular location. In some situations the agent 50 will use a clearing agent for the settlement of a security at that location. In that circumstance, the agent's settlement instruction will identify the clearing agent and provide reference to further

settlement instructions specified by the clearing agent (such as the name and account number of a subcustodian which will act to exchange securities and funds to settle the trade). Agent Information Table(s) 63 will contain agent account numbers related to the clearing agent and subcustodian. In addition to other data, the settlement information which is stored in the Agent Information Table(s) 63 can include: 1) an agent identification number; 2) security type indicator; 3) settlement location indicator; 4) a clearing agent identifier; 5) a clearing agent's internal account number for the agent; 6) a subcustodian identifier; and 7) a subcustodian's internal account number for the clearing agent.

Broker/Institution Link Table(s) (64, Fig. 5): This table contains a set of cross-references between broker internal account numbers and institution internal account numbers for specific accounts. The broker 30 generates this link as set forth above.

Broker Confirmation Information Table(s) (65, Fig. 5): Brokers 30 enter information required by SEC Rule 10b-10 or otherwise required to be included for each trade. Such information includes: 1) broker/dealer commissions; 2) federal taxes; 3) state taxes; 4) local taxes; 5) shipping/registration fees; and 6) customer disclosure information.

The Related Storage Database Tables (66 and 67 Fig. 5): In addition to the SID 13 tables above, databases within RSD 14 also supply settlement background information. The identifiers in SID 13 create links to information in two tables in RSD 14: the Entity Master Table(s) 66 and the Entity Table(s) for Names and Addresses ("ETNA") 67. The Entity Master Table(s) 66 contains a list of unique identifiers for each entity (e.g., institution 20, broker 30 and agent 50) using the system. These names are input by, for example, an administrator or service department of the trade confirmation communication system 19 when an institution 20, broker 30 or agent 50 submits an application to use the system. The information stored in these tables cannot be later modified by the end users. An identification number for an institution 20, broker 30 or agent 50 input to SID 13 generates e.g. the corresponding name, address and background information from the ETNA 67.

Updating SID (Adding, Changing or Deleting Information on the Database): Within SID 13, institutions 20, brokers 30 and agents 50 each have the ability to enter changes with an effective date that specifies when the addition, change or deletion should be put into effect. In an exemplary embodiment, for example, the brokers 30 affiliated with a specific account on the Institution Information Table(s) 61 as described above would be notified when an institution 20 inputs a change to the account information stored on that database. In an exemplary embodiment the trade confirmation communication system 19 uses a specified "effective date" to determine when a change is implemented. In the exemplary embodiment, all parties responsible for entering information in SID 13 have the ability to enter a SID change with an effective date specifying when the addition, change or deletion should be put into effect. Effective date changes fall into two categories: trade date-related changes and settlement date-related changes. Both dates are independent of notification to a broker 30 or other party, which may occur on the day of the update.

C. Trade Settlement Through Matching and the Pending Match Database (PMD)

The information input into the SID 13 and RSD 14 databases can be used with an NOE and II to generate a confirmation. However, to facilitate matches between an NOE and II, the present invention provides the PMD 15 database in addition to the SID 13 and RSD 14 databases.

The Pending Match Database (PMD) (Fig. 6): The PMD 15 contains information relating to the securities trade itself and is used to match NOE's and II's. For storage of such information, the PMD 15 has a relational database storage structure made up of database tables. Referring to Fig. 6, the PMD 15 database tables include, but are not limited to, the following:

Pending NOE Information Table(s) 71; and
Pending Institution Instruction Table(s) 72.

D. NOE and II Matching

In trade settlement, before securities are exchanged for funds, the parties must first confirm the trade and agree to the details of its settlement. The enhanced matching system of the present invention matches data fields between the II and NOE, and then generates a confirmation using the information found in the II and NOE and additional information from the standing instructions in the SID 13 and RSD 14 databases.

1. Broker NOE Communications

Fig. 2 depicts an exemplary process flow for the steps of the broker communication and system execution in the matching process. In step 101 broker 30 generates an NOE after a securities trade has been executed (to fulfill either part or all of the trade order) and sends the NOE to the computer 10. (Referring to Fig. 1, broker 30 transmits the NOE to the computer 10 along communication link 31 and the trade confirmation communication system 19 receives the NOE). To generate the NOE in the exemplary embodiment, the communications software on the computer terminal at the broker 30 location enables the broker 30 to provide information on the executed trade: e.g., broker information, trade details and identification. This information can be used in conjunction with the data within the Broker Information Table(s) 62 and the Broker Confirmation Information Table(s) 65 to generate confirmation information. In an exemplary embodiment, the NOE contains information in its data fields such as the following:

A Transaction Type to identify the communication as either an NOE, II or other communication;

A Unique Reference Identifier to identify the NOE;

A Broker/Dealer Identification Number to identify the broker 30 for this the securities trade;

A Broker Internal Account Number to identify the broker's customer (for individual orders, not to be used on block orders).

5 An Institution Identification Number to identify the institution 20 for this securities trade;

A Security Type to identify the type of security traded (e.g. equity, fixed income);

10 A Security Identifier Number for identification of the security (e.g., a CUSIP number);

A Ticker Symbol;

15 A Buy/Sell Code for determination of whether the institution 20 is buying or selling the securities;

20 A Cumulative Shares/Face Value Amount for determining the number of shares or the face value of the securities which have been traded up to that moment in fulfillment of the trade order (e.g. 10,000 shares, \$10,000 in face value of debt securities);

25 An Average Price Per Share/Face Value or other unit at which the securities were traded to provide an average price per share/value for the securities which have been traded to up to that moment in fulfillment of the trade order;

30 An Execution Shares/Face Value Amount for determining the number of shares or the face value of the securities which have been traded for the particular trade execution documented by the NOE (e.g. 1,000 shares, \$1,000 in face value of debt securities);

An Execution Price Per Share/Face Value or other unit at which the securities were traded to provide an average price per share/value for the securities which have been traded in the particular trade execution documented by the NOE;

5

A Total Settlement Amount for the Trade to specify the amount of the trade order (including all costs);

A Currency Code;

10

A Trade Date to indicate the date on which the trade was executed;

A Settlement Date to indicate the date by which the trade is to be settled;

15

The Settlement Type to identify whether the trade is to settle e.g. on a "regular basis" or on a "when issued basis";

A Match Indicator Override to indicate that this particular trade will not be matched and matching should be canceled for this trade when a broker 30 has selected matching for the account;

20

The present invention permits the broker 30 to designate matching by account and then override matching on a trade-by-trade basis. When inputting data into the Broker Information Table(s) 62 within SID 13 the broker 30 can input a Match Indicator for a particular customer account. In the match process, the Match Indicator found for the account within the Broker Information Table(s) 62 will control unless the specific Match Indicator Override within the NOE is set to override it. The fields specified above are exemplary and the NOE can be created with additional fields or fewer fields.

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In step 101 the broker 30 transmits the NOE to computer 10 (using the computer terminal (referring to Fig. 1 the broker 30 transmits the NOE to computer 10 along

communication link 31 and the NOE is received by the trade confirmation communication system 19). A router (within 19) delivers the NOE to the collection files 12.

5 In step 102 of Fig. 2, the matching controller 11 accesses the NOE in the collection files 12 to examine and validate the data contained within. The matching controller 11 first identifies the communication to be an NOE (as opposed to an II or other communication by e.g. checking the transaction type field) and then checks the information within its data fields for completeness and accuracy of data type. If in
10 step 103 the matching controller 11 determines that the NOE is not complete or is not verifiable, it will return the message to the broker 30 with an error code attached. If in step 103 the communication is verifiable, the matching controller 11 proceeds to step 104 to try to match the NOE with an II that may have been previously stored in PMD 15. In step 104 the matching controller 11 will first determine whether the
15 NOE is eligible for matching by locating the match indicator for the account in both the Broker Information Table(s) 62 and the Institution Information Table(s) 61 and checking the Match Indicator Override on the NOE. If the NOE is eligible for matching, the matching controller 11 will compare it to II records ready for matching in the pending institution instruction table(s) 72 within the PMD 15.

20 In step 106 if the new NOE does not match any previously transmitted II's, the matching controller 11 will copy the contents of the NOE to the PMD 15 (in step 108) and then transmit the NOE (in step 110) to the institution 20 (using e.g. a router of the trade confirmation communication system 19 and communication link 21 (of Fig.1)).
25 If there is a match (such as if the NOE is the last of a series of NOE's and completes the trade order allocated in the corresponding II) the matching controller 11 in an exemplary embodiment proceeds in step 112 to write an indication of the match to a match file 114. (The matching procedure is described in further detail below) then creates in step 116 a confirmation to be made available to the settlement parties. (The
30 preparation and dissemination of the confirmation is also described in further detail below.)

2. Institution II Communications

Fig. 3 depicts an exemplary process flow of steps when an institution 20 sends an II. In step 201 an institution 20 transmits the II to the computer 10, using the communications software on the computer terminal at the institution location. (Referring to Fig. 1, the institution 20 transmits the II to the computer 10 along communication link 21 and the trade confirmation communication system 19 receives the II). The II contains account allocation information that will permit a block trade to be allocated among the institution's customer accounts. The II comprises records containing data that is common to all of the accounts involved and also allocation and other data that is specific to each of the involved accounts. In addition to other information, the II records include:

Common Data Record Fields such as:

A Transaction Type to identify the communication as either an NOE, II or other communication;

A Unique Reference Identifier to identify the II;

A Broker/Dealer Identification Number to identify the broker 30 for the securities trade;

An Institution Identification Number to identify the institution 20 for this securities trade;

The Unique NOE Reference Identifier to reference one NOE sent by broker 30 for the securities trade when one NOE can be used to provide information on the entire trade order and can be matched to the II;

A Block Reference Number to provide the institution's internal reference number for the particular trade;

- A Security Type to identify the type of security traded (e.g. equity, fixed income);
- 5 A Security Identifier Number for identification of the security (e.g., a CUSIP number);
- A Ticker Symbol;
- 10 A Buy/Sell Code for determination of whether the institution 20 is buying or selling the securities;
- A Cumulative Shares/Face Value Amount for determining the number of shares or the face value of the securities in the total trade order;
- 15 An Average Price Per Share/Face Value or other unit at which the securities were traded to provide an average price per share/value for the total trade order over all of the executions required to fill an order;
- 20 A Total Settlement Amount for the Trade to specify the amount of the trade order (including all costs);
- A Currency Code;
- 25 A Trade Date to indicate the date on which the trade was executed;
- A Settlement Date to indicate the date by which the trade is to be settled;
- 30 The Settlement Type to identify whether the trade is to settle, e.g., on a "regular basis" or on a "when issued basis";

A Match Indicator Override to indicate that this particular trade will not be matched even though the institution 20 has selected matching for the account;

Matching Tolerance Override to re-set matching tolerances on a trade-by trade basis;

and Specific Allocation Record Fields such as:

A System Control Number, to provide a unique control number for each allocation;

The Institution Identification Number (same as above);

The Block Reference Number (same as above);

An Institution Internal Account Number (for the customer account);

A Shares Allocated/Face Value Allocated;

A Commission Type Indicator;

A Commission Fee Amount;

An SEC Fees and Shipping Amount;

Amount(s) for Taxes (country, local, etc.);

An Amount for other charges;

A Principal Amount of the Trade;

A Net Amount of the Trade (The Principal Amount plus or minus fees based on a buy/sell formula);

An Interest Amount (for calculating interest on debt securities);

The Settlement Location (e.g., DTC or a Federal Reserve Bank);

An Agent Identification Number;

An Agent Internal Account Number; and

A Split/Currency Settlement Indicator to identify when security and funds settle in different locations;

The present invention permits the institution 20 to designate matching (and matching tolerances) by account and override that designation (and re-set tolerances) on a trade-by trade basis. When inputting data into the Institution Information Table(s) 61 within SID 13, the institution 20 can input a Match Indicator (and Tolerances) for a particular account or customer. In the matching process those match indicators would control unless the specific Match Indicator Override or Match Tolerances Override is set within the II.

The fields specified above are exemplary and the II can be created with additional fields and fewer fields. For example, in the exemplary embodiment the institution 20 can omit the Agent Identification number and the Agent Internal Account number as they can be derived from a table within SID.

The communications software located on the computer terminal at the institution 20 transmits the II to the computer 10. Referring to Fig. 1, institution 20 transmits the II to the computer 10 along communications link 21 and the trade confirmation

communication system 19 receives the II. A router (within 19) delivers such communication to the collection files 12.

5 In step 202 of Fig. 3, the matching controller 11 accesses the collection file 12 to examine the new II. The matching controller 11 first identifies the communication to be an II (as opposed to an NOE or other communication) and then checks the information within the data fields for completeness and accuracy of data type. If, in step 203, the matching controller 11 determines that the II is not complete or is not verifiable, it will proceed to step 205 and return the message to the institution 20 with an error code attached.

10 If the communication is verifiable in step 203, the matching controller 11 will proceed to step 204 and attempt to match the II with an NOE stored in the PMD 15. In Step 204 the matching controller 11 will first check the match indicators for the institution's account to determine if the II is eligible for matching. The matching controller 11 will check the Match Indicator for the account within both the Institution Information Table(s) 61 and Broker Information Table(s) 62 to see if matching has been selected and also check the Match Indicator Override on the II to determine if the preference for matching has been overridden. If the II is eligible for matching, the matching controller 11 will attempt to match the II with an NOE in the Pending NOE Information Table(s) 71 within the PMD 15. (The matching process is described below.)

25 If in step 206, the matching controller 11 finds no match for the II in the Pending NOE Information Table(s) 71, the controller then proceeds to step 207 and copies the II onto a location in the Pending Institution Instruction Table(s) 72 within the PMD 15, waiting for a match to occur upon receipt of a new NOE. The matching controller 11 may then in step 210 send a copy of the II to the broker 30. If in step 206, the matching controller 11 does match an II with an NOE (or a final NOE in the case of a series of NOE's resulting from multiple executions filling one order), the controller 30 then proceeds to step 208 to store an indicator of the match on the match file 114, and

then in step 209 generates a matched confirmation communication and makes the confirmation available to the settling parties as described below.

E. Matching

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In the exemplary embodiment of the present invention, the matching controller 11 matches on the basis of a one for one match between fields within an II and an NOE. First, the present invention attempts to match the number in the NOE's Unique NOE Reference Identifier field with the number found in the corresponding field of the II.

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As stated above, the II to be matched can contain a reference to a specific NOE in its Unique NOE Reference Identifier field (when the field has not been set to

"MULTIPLE" as described above). In step 106 Fig. 2 and 206 Fig. 3, the matching controller 11 will attempt to locate within the Pending NOE Information Table(s) 71 the NOE which corresponds to the Unique NOE Reference Identifier within the II. If that NOE can be found, the matching controller 11 will find a match and then validate the match by confirming that certain other fields in the NOE and II (e.g., the fields listed in the following paragraph) also match.

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Even if the system can find no match based on the Unique NOE Reference Identifier, the matching controller 11 will continue to attempt to match based on a one for one match of the data within other fields common to both the NOE and II such as by:

The Broker/Dealer Identification Number to identify the broker 30;

25

The Institution Identification Number to identify the institution 20;

The Security Identifier Number for identification of the security (e.g., a CUSIP number);

30

The Buy/Sell Code for determination of whether the broker 30 is delivering or receiving the securities;

An Cumulative Shares/Face Value Amount for determining for determining the number of shares or the face value of the securities in the total trade order (e.g. 10,000 shares, \$10,000 in face value of debt securities);

- 5 The Total Settlement Amount;
 The Trade Date; and
 The Settlement Date.

10 Additionally, other fields could be specified for the match. For instance, an NOE could be constructed to contain additional institution and agent data fields and these fields could be compared by the matching controller 11 to corresponding fields in an II to determine if a match exists. Matching those additional fields in the NOE and II could provide additional reliability to the match and could also be used to identify particular trades, such as a single (non-allocated) trade. The additional matching
15 fields could also be required, if, for example, the broker 30 did not link its internal account number to the institution's internal account number in the Broker/Institution Link Table(s) 64 within SID 13.

20 The matching procedure described requires that information entered by both the broker 30 and the institution 20 "match" field by field and item by item. However, it is possible to designate tolerances within the total settlement amount. For example, if a tolerance parameter of \$5.00 is set by the institution on the settlement amount, and if the settlement amount listed on the NOE and II differ by \$5.00 or less, the system still could consider the trade a "match" if all other fields matched. In an exemplary
25 embodiment, the institution 20 has the ability to enter tolerance parameters for settlement amount in the Institution Information Table(s) 61 within SID 13, by settlement currency in two ways. First, the institution 20 may enter an absolute tolerance amount, specifying that the settlement amount submitted by the broker 30 in a particular currency may not vary by more than a pre-determined amount per trade,
30 regardless of the total settlement amount. For example, using U.S. dollars, the institution 20 might enter a \$50.00 absolute tolerance amount, indicating that the Total Settlement Amount field within the NOE of the broker 30 must never deviate

from the Total Settlement Amount field within the II submitted by the institution 20 by more than \$50.00. Second, the institution 20 may express the tolerance amount for a given currency as it relates to the total settlement amount for trades in that currency. For example, the institution 20 might enter a tolerance parameter indicating that, for each \$100,000 of the total settlement amount, the Total Settlement Amount submitted by the broker 30 must not deviate from the Total Settlement Amount submitted by the institution 20 by more than \$10.00. The absence of a tolerance parameter for a specific currency would require an exact match on the settlement amount.

As indicated above the present invention also allows for matching where multiple trades are required to fill an institution's trade order. In this case, a series of NOE's will be generated and received, where the final NOE in the series for the trade order will indicate the total amount of shares purchased for this trade order and the average price of those shares (across the multiple executions) in its Cumulative Shares/Face Value and Average Price Per Share/Value fields, respectively. The matching controller 11 may determine a match for the final NOE in such a series by, for example, determining that the Cumulative Shares face value field in the final NOE matches the corresponding field in the II. When such a final NOE is found, and the matching controller 11 finds a corresponding II, a confirmation will be generated as described below. For the non-final NOE's in such a series, the matching controller 11 may (e.g. by matching all fields indicated above except for the Cumulative Shares/Face Value, Average Price Per Share Value, and Total Settlement Amount fields) determine that the NOE is related to an II, but is not the final NOE in the series. A confirmation will not be generated for such a partial NOE match.

The matching criteria presented above are exemplary. It is understood that there are other, different fields by which a match could be obtained.

In step 106 (of Fig. 2 referenced above) and in step 206 (of Fig. 3 referenced above), the computer 10 matches the information data fields to determine if the II and the NOE refer to the same securities trade based on one or more of their fields as described above and generates a confirmation as described below. The matching

system of the present invention is able to generate a confirmation after only one post-trade entry each by the institution 20 and the broker 30 rather than the prior art's multiple exchange. The reduction in communications ensures greater speed and greater accuracy.

5

F. Confirmation Generation Based on the Match

If a matching criteria above yields a match between an NOE and II, such as in step 206 of Fig. 3, the matching controller 11 can in step 209 generate a confirmation based on information from the II (and/or the NOE) and from data contained in SID 13 and RSD 14. This confirmation will contain details on the trade and instructions for settlement. The matching controller 11 also adds client account information stored within the database tables. The extraction of information from SID 13 will start with lookups based on several different fields both in the common and specific areas of the II (and/or similar fields in the NOE). Multiple databases within SID 13 may have to be queried, and information derived from these first SID database lookups may be combined with information contained with various fields to perform further SID database lookups. The confirmation may consist of:

20 Institution Identification Number;
 Institution Name (e.g. from RSD 14);
 Broker/Dealer Identification Number;
 Broker Name (e.g. from RSD 14);
 Broker Internal Account Number;
25 Clearing Broker Number;
 Clearing Broker Name (e.g. from RSD 14);
 Trade Date;
 Agent Identification Number;
 Agent Name (e.g. from RSD 14);
30 Agent Internal Account Number;
 A Clearing Agent Identifier for identification of the agent used to settle;
 A Clearing Agent Name (e.g. from RSD 14);

A Clearing Agent Internal Account Number to identify the agent's account;
A Subcustodian Identifier (if necessary) to identify the subcustodian, branch
number or depository;
A Subcustodian Internal Account Number (if necessary) to identify the
5 subcustodian's account number for the clearing agent;
A Subcustodian Account Name (if necessary) to identify the subcustodian's
account name;
A Split Currency Settlement Indicator to indicate whether cash settlement for
the trade is taking place in a currency other than the currency of the country in
10 which security settlement is taking place, and that the cash and security settle
in different locations;
Trade Date;
Settlement Date;
Buy/Sell Code;
15 Settlement Location;
Security Identifier Number (e.g. a CUSIP number);
Security Description (e.g. from RSD 14);
Security Type;
Cumulative Shares/Face Value Amounts;
20 Average Price Per Share/Value;
Total Settlement Amount;
SEC Fees and Shipping Amounts;
An Interest Amount (for calculating interest on debt securities);
Amounts for Taxes (county, local, etc.);
25 A Commission Fee Amount;
Other Charges;
Principal Amount of the Trade Value;
Interested Party Information;
Settlement Type; and
30 Special instructions.

Fig. 4 depicts an exemplary process flow for the steps of generating a confirmation comprising II, NOE and SID-derived information. In step 300 the matching controller 11 prepares the confirmation. In step 302 or 303, the confirmation will be made available by the computer 10 to the broker 30, institution 20, agent(s) 50, and interested parties 40. (Referring to Fig. 1, the matching controller 11 makes this communication available via communication links 21, 31, 41, and 51.) In step 301, the matching controller 11 determines the type of confirmation to be sent. In the exemplary embodiment there are two types of confirmations available, depending on which party to the transaction is designated as the "affirming" party. The institution 20 stores information concerning the "affirming" party in the Institution Information Table(s) 61, within SID 13 (see Fig. 5). If the institution 20 is the designated affirming party (which has also agreed to the matching process), in step 302 of Fig. 4, the confirmation is sent as a "Matched Affirmed Confirmation". If the affirming party is a party other than the institution 20, such as the interested party 40, in step 303 the confirmation is sent as a "Matched Confirmation" requiring subsequent affirmation. Settlement, the actual exchange of the traded securities and payment, can be effected through electronic or other methods. The broker 30 and agent 50 upon receipt of an affirmed confirmation (e.g. transmitted to the terminal at the agent's location) can effect an exchange of funds and securities according to the delivery instructions set forth in the confirmation.

In the exemplary embodiment, the matching controller 11 identifies unmatched items interactively where it has found (e.g., after a specified time) that no match exists between the NOE and II. For such cases, the matching controller 11 can also generate an "unmatched NOE or II" communication which will be made available to the respective broker 30 or institution 20. During and/or at the end of each processing day, the system also generates an "unmatched" report, which is cumulative, and lists all NOE and II's which were not matched during the day (or during prior days).

The invention continues as described above. The above described embodiment of the invention is meant to be representative only, as certain changes may be made therein without departing from the invention's clear teachings.

What is claimed is:

1. A system for facilitating settlement of a securities trade by obtaining agreement as to the details of the trade among a broker, institution, agent and interested parties comprising:
 - a. a computer system which enables the broker, institution, agent and interested parties to send and receive communications;
 - b. a standing instructions database containing sets of instructions for trade settlement previously input by the institution, the broker and the agent;
 - c. a processing computer within the computer system, which is coupled to the standing instruction database and which is configured to:
 - i. receive a communication from the broker containing notice of order execution information (a broker communication);
 - ii. receive a communication from the institution containing institution allocation instruction information (an institution communication);
 - iii. match the institution communication with the broker communication based on information contained in both communications;
 - iv. if there is a match, generate a confirmation for the trade based on information contained in the broker communication, information contained in the institution communication and information stored in the standing instructions database; and

- v. make available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates the exchange of money and securities to settle the trade.

2. The system of claim 1 where the broker communication and the institution communication each contain the data fields of:

- a. an institution identification number;
- b. a broker identification number;
- c. a security identification number;
- d. a buy/sell code;
- e. a number of shares or face value;
- f. a settlement amount;
- g. a trade date; and
- h. a settlement date,

and the processing computer matches the broker communication with the institution communication based on at least those fields.

3. The system of claim 1 in which the broker communication contains a unique identification number for that communication and the institution communication comprises a data field to reference the unique identification number of the broker communication and the processing computer matches the broker communication and the institution communication on the basis of the unique broker communication identification number.

4. The system of claim 1 in which the information in the standing instruction database contains (i) records for the internal customer account numbers of the institution's accounts and the corresponding internal account numbers used by the broker for those accounts and (ii) a record to link those internal account numbers and if there is a match, the processing computer generates the confirmation by accessing the record that links the internal account numbers and the data based on those account numbers.
5. The system of claim 1 in which the broker communication and the institution communication both contain a data field indicating a settlement amount for the trade, the institution communication additionally contains a tolerance data field which specifies a tolerance value by which a match based on settlement amount could vary and the processing computer matches the broker communication and the institution communication long as the settlement amounts vary only by an amount within the tolerance.
6. The system of claim 1 in which the institution communication contains a data field which indicates that the institution is the affirming party for the trade and the processing computer generates a confirmation which contains this indication in a data field.
7. The system of claim 1 in which the processing computer is coupled to a match database into which the processing computer stores the broker communication and retrieves it before attempting to match the broker communication with the institution communication.
8. The system of claim 1 in which the processing computer is coupled to a match database into which the processing computer stores the institution communication and stores it before attempting to match the broker communication with the institution communication.

9. A computer-based system for settlement of a securities trade among an institution, broker, agent and interested parties, the system comprising:

a processing computer configured to (i) receive a communication from the broker (a broker communication) comprising data fields with information concerning the executed trade; (ii) receive a communication from the institution (an institution communication) comprising data fields with information concerning the executed trade, where some of the data fields within the institution communication corresponding to data fields within the broker communication; and (iii) match the broker communication and the institution communication matching the data within a preselected set of the corresponding data fields.
10. The system of claim 9 where the broker communication is a notice of order execution.
11. The system of claim 9 where the institution communication is an institution allocation instruction.
12. A system for facilitating settlement of a securities trade among a broker, institution, agent and interested parties comprising:
 - a. a computer system which enables the broker, institution, agent and interested parties to send and receive communications;
 - b. a processing computer within the computer system which is configured to:
 - i. receive a communication from the broker containing notice of order execution information (a broker communication);

- ii. receive a communication from the institution containing institution allocation instruction information (an institution communication);
 - iii. match the institution communication with the broker communication based on information contained in both communications;
 - iv. if there is a match, generate a confirmation for the trade based on information contained in the broker communication and information contained in the institution communication; and
 - v. make available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates the settlement of the trade.
13. In a computerized communication system used to exchange communications between a broker and an institution in the settlement of a securities trade:
- a. a broker communication containing data within data fields designated by:
 - institution identification number;
 - broker identification number;
 - security identification number;
 - buy/sell code;
 - number of shares or face value;

settlement amount;

trade date; and

settlement date,

- b. an institution communication containing data within data fields designated by:

institution identification number;

broker identification number;

security identification number;

buy/sell code;

number of shares or face value;

settlement amount;

trade date; and

settlement date, and

- c. a computer processor which compares the data within data fields of the broker communication with the data within data fields of the institution communication and if the data matches, generates a confirmation for the trade and makes available that confirmation to the institution, broker, agent and interested parties which facilitates the settlement of the trade.

14. In a computerized communication system for exchanging post-trade information between the parties necessary for the settlement of a securities trade, the apparatus comprising:
- a. a trade confirmation communications system comprised to receive, process and transmit communications from and to the parties;
 - b. a standing instructions data base coupled to the trade confirmation communications system having at least one data table for storing a plurality of information related to the trade stored by at least one of the parties;
 - c. a matching controller coupled to and within the trade confirmation communications system comprised to receive a trade communication containing order execution information from one of the parties and receive a communication containing a trade allocation information from another one of the parties; and
 - d. the trade confirmation communications system further comprised to generate a confirmation based on information within the received communication and information stored within the standing instruction database.
15. The system of claim 14, wherein the standing instructions database further comprises:
- at least one institution information data base;
 - at least one broker information data table;
 - at least one agent information data table;
 - at least one broker/institution link data table; and
 - at least one broker confirmation information data table.

16. The system of claim 14, wherein the standing instructions database further comprises at least one institution information data table and wherein at least one institution information data table is for storing institution and account information.
17. The system of claim 14, wherein the standing instructions database further comprises at least one institution information data table and wherein the at least one broker/dealer information data table is for storing settlement information.
18. The system of claim 14, wherein the standing instructions database further comprises at least one institution information data table and wherein at least one broker/institution link data table is for storing a set of cross-references between the broker account number and the institution customer account number.
19. The system of claim 14, wherein the standing instructions database further comprises at least one institution information data table and wherein at least one broker information data table is for broker confirmation information.
20. The system of claim 14, wherein the related data storage data table further comprises at least one file containing the names and addresses all parties involved in the trade.
21. A system executing post-trade communications in the settlement of a securities trade among a broker, institution, agent and interested parties comprising:
 - a. computer hardware and software means to enable the broker, institution, agent and interested parties to send and receive communications;

- b. means to state a set of standing instruction records containing sets of instructions for trade settlement previously input by the institution, the broker and the agent;
 - c. computer hardware and software means to:
 - i. receive a communication from the broker containing notice of order execution information (a broker communication);
 - ii. receive a communication from the institution containing institution allocation instruction information (an institution communication);
 - iii. match the institution communication with the broker communication based on information contained in both communications;
 - iv. if there is a match, generate a confirmation for the trade based on information contained in the broker communication, information contained in the institution communication and information stored in the standing instructions database; and
 - v. make available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates the exchange of money and securities to settle the trade.
22. A method for operating a computer to execute the communications necessary for settlement of a securities trade among a broker, institution, agent and interested parties, the method comprising the steps of:

- a. receiving a communication from the broker containing notice of order execution information (a broker communication);
 - b. receiving a communication from the institution containing institution allocation instruction information (an institution communication);
 - c. matching the institution communication with the broker communication based on information contained in both communications;
 - d. if there is a match, generating a confirmation for the trade based on information contained in the broker communication, information contained in the institution communication; and
 - e. making available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates the exchange of money and securities to settle the trade.
23. The method of claim 22 where the broker communication and the institution communication each contain the data fields of:
- a. an institution identification number;
 - b. a broker identification number;
 - c. a security identification number;
 - d. a buy/sell code;
 - e. a number of shares or face value;
 - f. a settlement amount;

- g. a trade date; and
- h. a settlement date;

and the matching step matches the broker communication with the institution communication based on at least those fields.

- 24. The method of claim 22 in which the broker communication contains a unique identification number for that communication and the institution communication comprises a data field to reference the unique identification number of the broker communication and the processing computer matches the broker communication and the institution communication on the basis of the unique broker communication identification number.
- 25. The method of claim 22 in which the broker communication and the institution communication both contain a data field indicating a settlement amount for the trade, the institution communication additionally contains a tolerance data field which specifies a tolerance value by which a match based on settlement amount could vary and the matching step matches the broker communication and the institution communication so long as the settlement amounts vary only by an amount within the tolerance.
- 26. The method of claim 22 in which the institution communication contains a data field which indicates that the institution is the affirming party for the trade and step of confirmation generation yields a confirmation which contains this indication in a data field.
- 27. The method of claim 22 comprising the additional steps of storing the broker communication and retrieving it before attempting to match the broker communication with the institution communication.

28. The method of claim 22 comprising the additional steps of storing the institution communication and retrieving it before attempting to match the broker communication with the institution communication.
29. A method for operating a computer to execute the communications necessary for settlement of a securities trade among a broker, institution, agent and interested parties, the method comprising the steps of:
 - a. receiving from one or more of the broker, institution and agent a set of instructions for trade settlement;
 - b. a standing instructions database storing the instructions for trade settlements;
 - c. receiving a communication from the broker containing notice of order execution information (a broker communication);
 - d. receiving a communication from the institution containing institution allocation instruction information (an institution communication);
 - e. matching the institution communication with the broker communication based on information contained in both communications;
 - f. if there is a match, generating a confirmation for the trade based on information contained in the broker communication, information contained in the institution communication and information stored in the standing instructions database; and
 - g. making available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates settlement of the trade.

30. The method of claim 29 in which the step of storing information in the standing instruction database comprises the storing of (i) records for the internal customer account numbers of the institution's accounts and the corresponding internal account numbers used by the broker for those accounts and (ii) a record to link those internal account numbers and the step of generating a confirmation and comprises the further step of (i) accessing the record that links the internal account records and (ii) accessing the internal account number records based on that link.
31. A system for facilitating settlement of a securities trade by communicating the details of the trade among a broker, institution, agent and interested parties comprising:
- a. a computer system which enables the broker and institution to send and receive communications and make communications available to the agent and interested parties;
 - b. a standing instructions database containing sets of instructions for trade settlement previously input by the institution, the broker and the agent;
 - c. a processing computer within the computer system, which is coupled to the standing instruction database and which is configured to:
 - i. receive a series of communications from the broker containing notice of order execution information, the series including a last broker communication;
 - ii. receive a communication from the institution containing institution allocation instruction information (an institution communication);

- iii. match the institution communication with the last broker communication based on information contained in both communications;
 - iv. if there is a match, generate a confirmation for the trade based on information contained in the last broker communication, information contained in the institution communication and information stored in the standing instructions database; and
 - v. make available the confirmation as a communication to the institution, broker, agent and interested parties which facilitates the exchange of money and securities to settle the trade.
32. The system of claim 31 where the institution communication and each communication in the series of broker communications each contain the data fields of:
- a. an institution identification number;
 - b. a broker identification number;
 - c. a security identification number;
 - d. a buy/sell code;
 - e. a number of shares or face value;
 - f. a settlement amount;
 - g. a trade date; and

h. a settlement date;

and the processing computer matches at least the last broker communication with the institution communication based on those fields.

Fig. 1

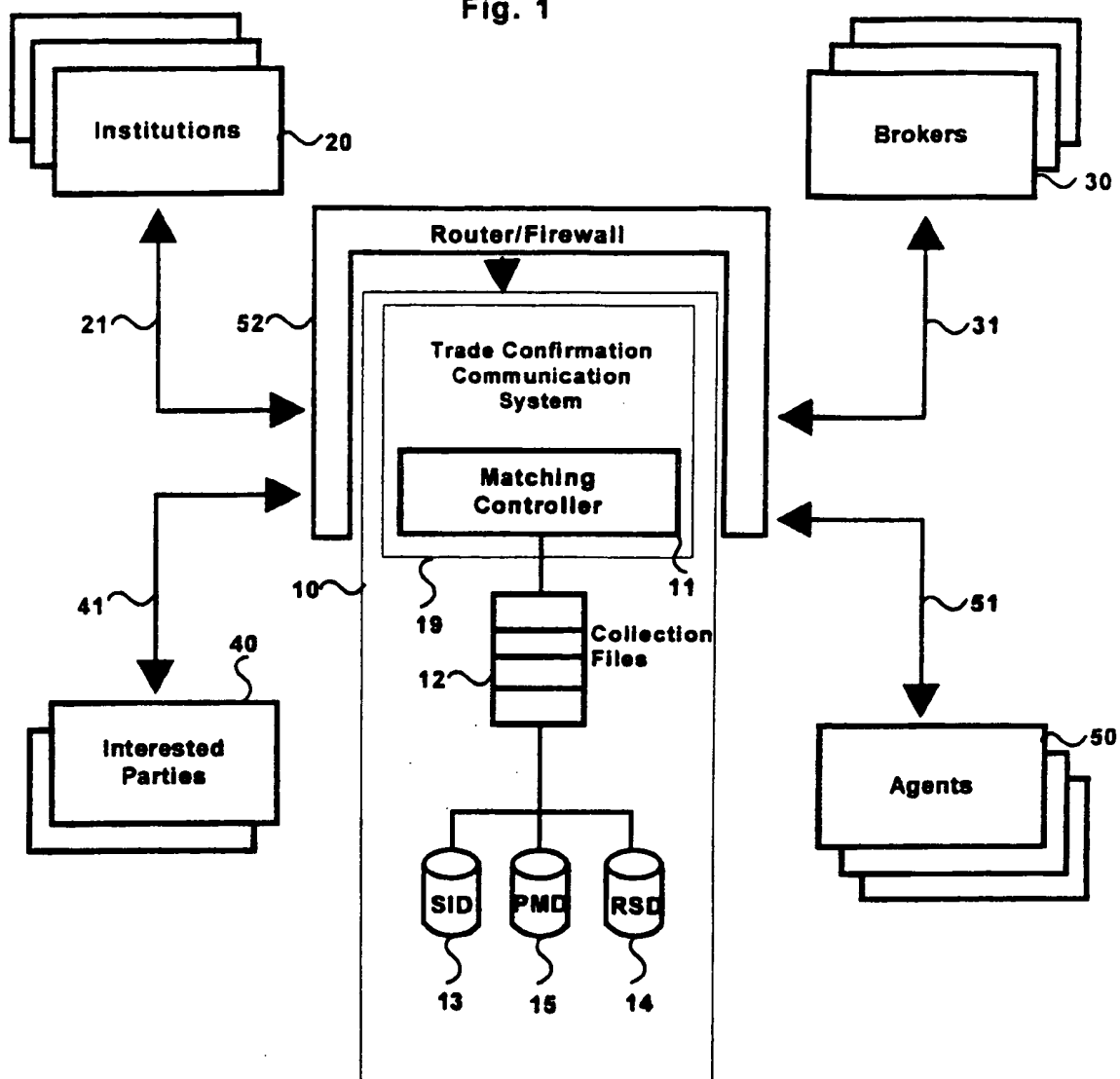


Fig. 2

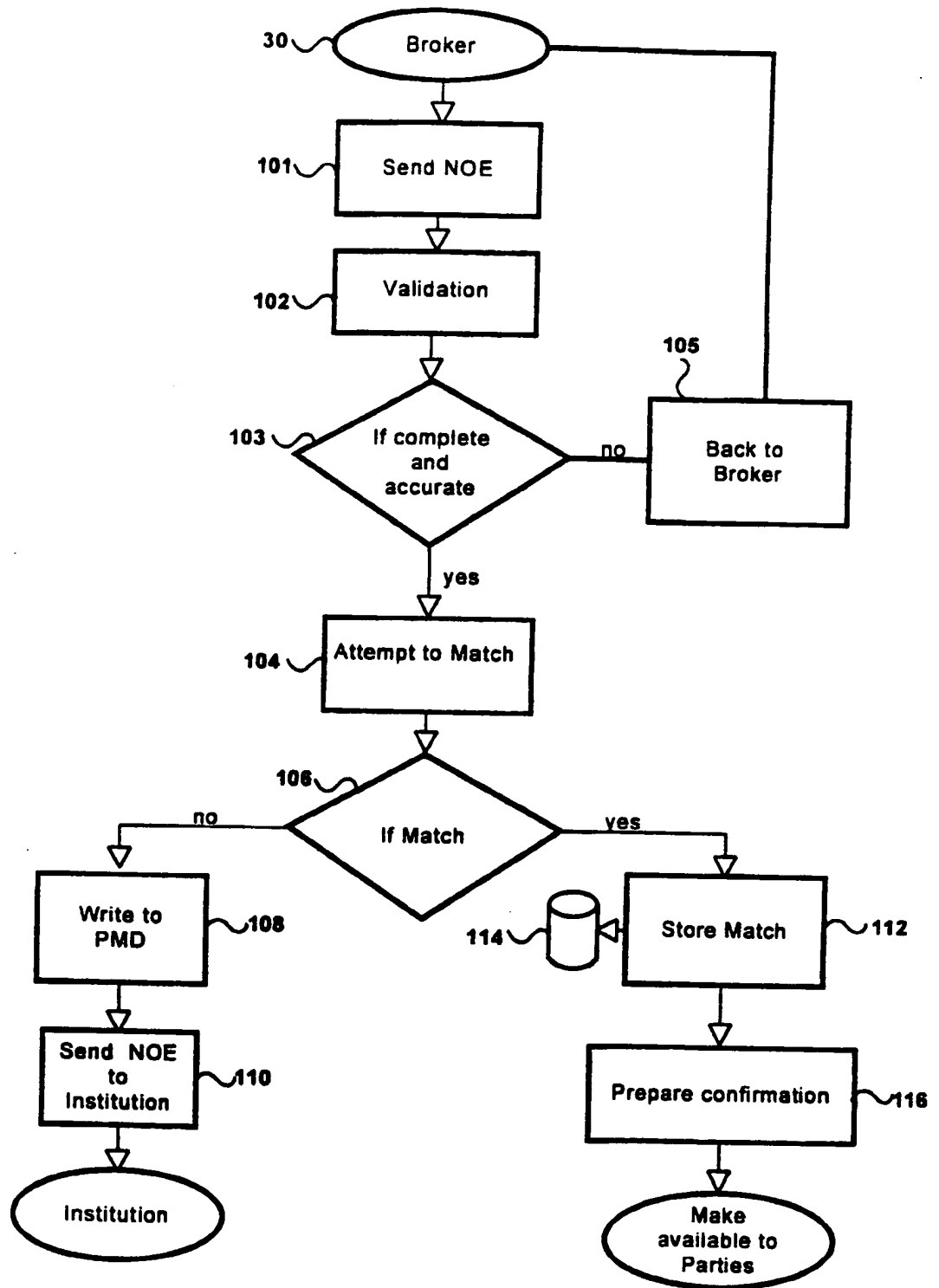


Fig. 3

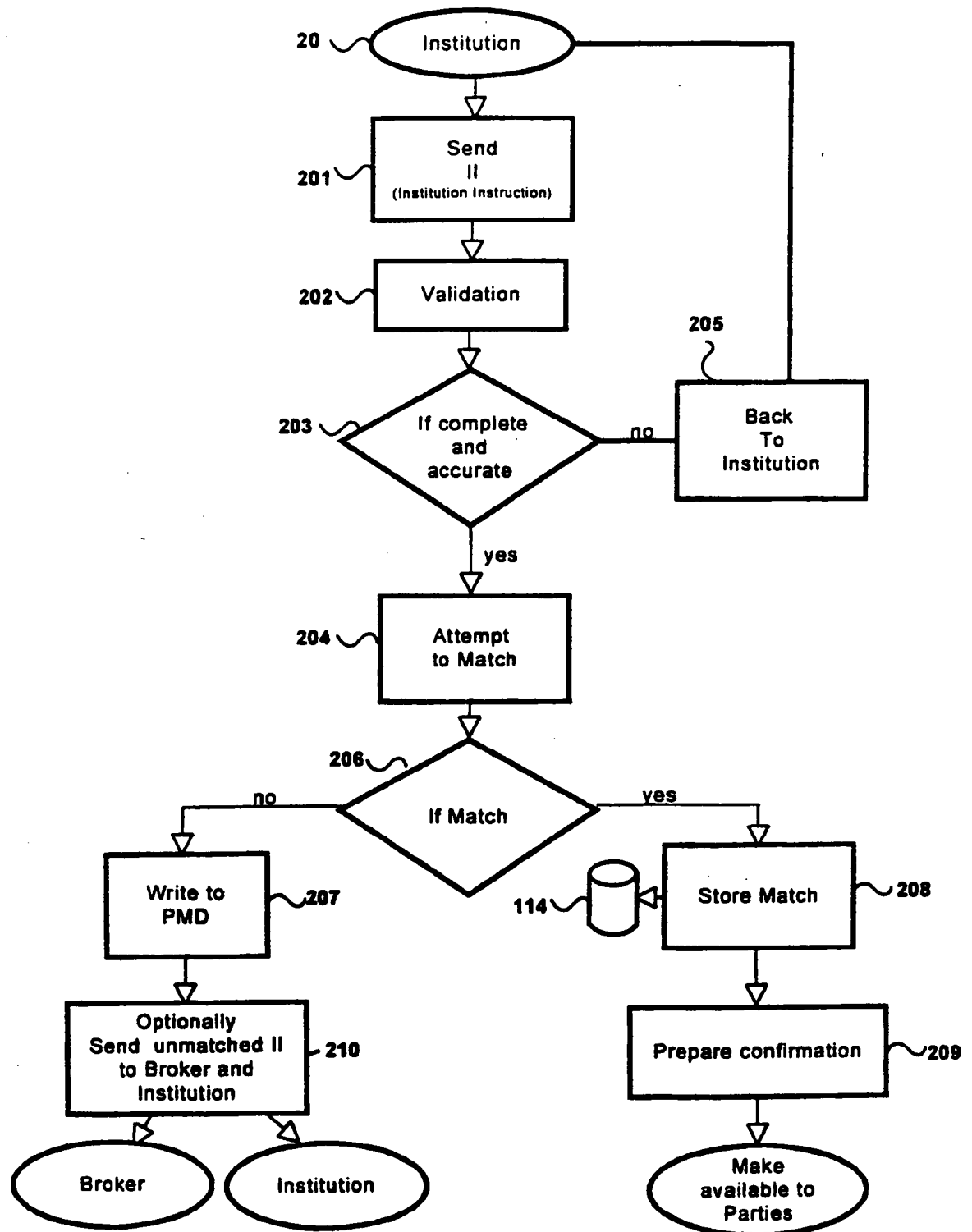
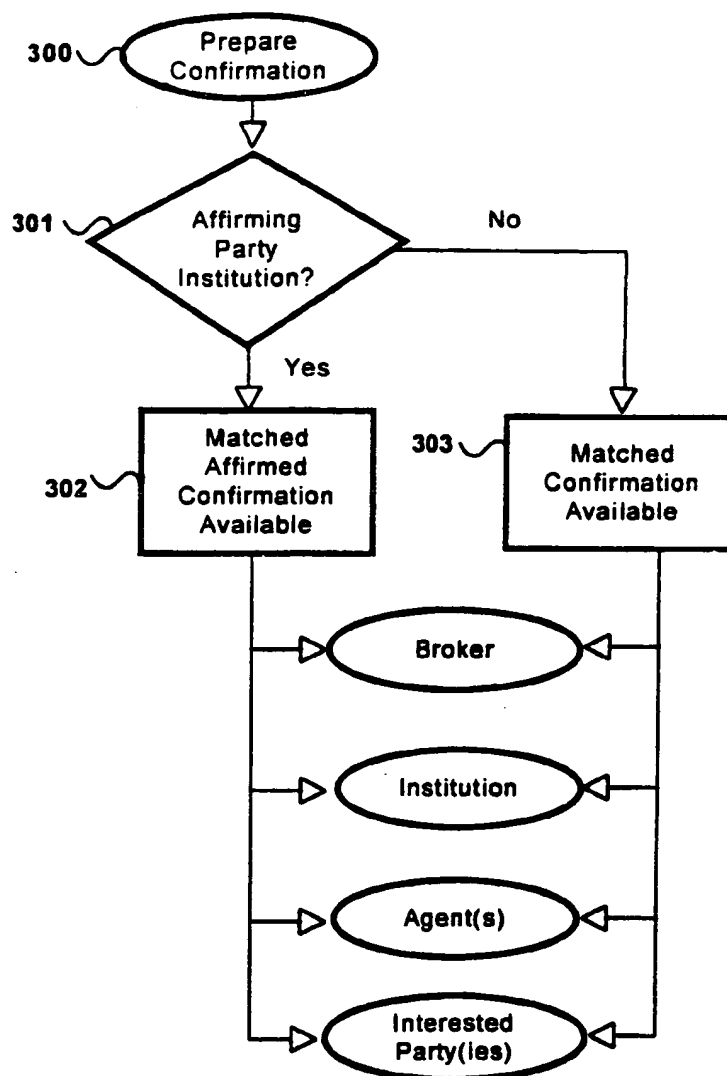


Fig. 4



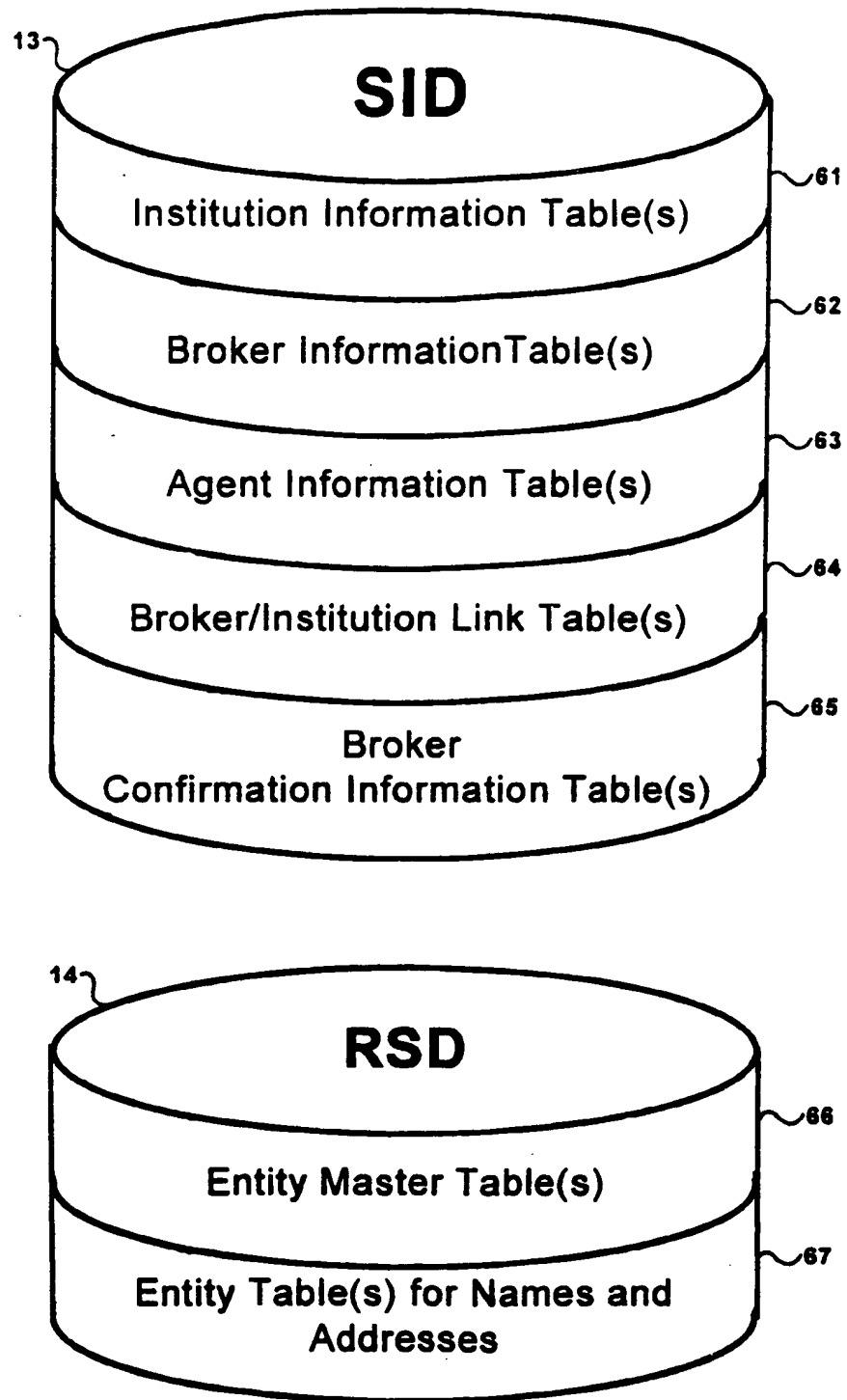
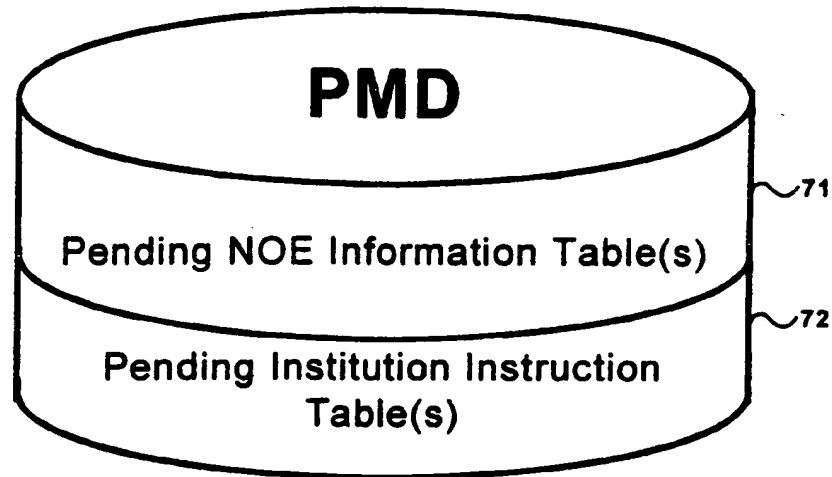


Fig. 5

**Fig. 6**

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/23695

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : GO6F 17/60

US CL : 705/35

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/35

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,497,317 A (HAWKINS ET AL.) 05 MARCH 1996, SEE COLUMN 1, LINE 47 TO COLUMN 9, LINE 67.	1-32

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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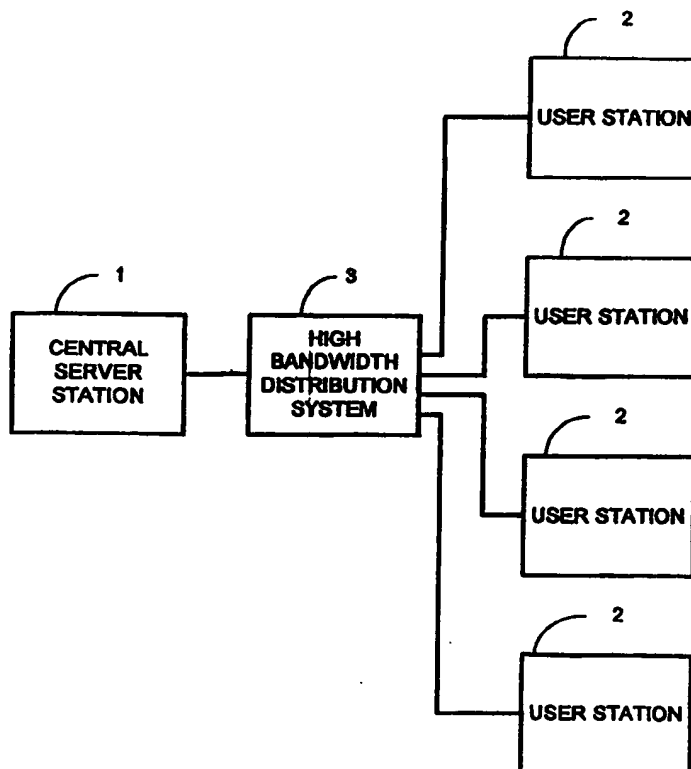
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(74) Agents: BERESFORD, Keith, Denis, Lewis et al.; Beresford & Co., 2-5 Warwick Court, High Holborn, London WC1R 5DJ (GB).		Published With international search report.	

(54) Title: NETWORK COMPUTER TRADING SYSTEM

(57) Abstract

A network computer trading system is provided comprising a central server station (1) connected to a number of user stations (2) by a high band width distribution system (3). The central server station (1) includes a mass data storage system (13) having stored therein a main input interface for inputting a selection of a type of commodity to be traded and a plurality of commodity interfaces for inputting product details of specific commodities, wherein each of the plurality of commodity interfaces is arranged to enable the input of data relating to a respective different one of a plurality of commodities. A user can select which type of commodity he wishes to trade via the main input interface and then enter data relevant to trading that commodity using the respective commodity interface.



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NETWORK COMPUTER TRADING SYSTEMTechnical Field

The present application is concerned with the field of networked computer trading systems.

5 Background art

When an individual wishes to purchase a product, if he wishes to obtain that product at the cheapest price, it is necessary to contact a number of suppliers and check the prices offered by those suppliers before
10 deciding on which of the suppliers he will deal with. After the individual has reviewed all the options, a request is then sent to the supplier who can then confirm a contract.

Reviewing prices offered by suppliers and the
15 placing of contracts has for many years taken place using telephones, fax machines, letters and face to face meetings. Reviewing the prices of a number of different suppliers is complicated because of the need to repeat to each supplier the details of the product. When this
20 is done by telephone this requires an individual to repeat the order every time a call is made. If an enquiry is made by letter or facsimile, separate copies of the letter need to be sent to each of the suppliers. This repeated entry of product details is time consuming
25 and inefficient.

In order to overcome the above problem, a number of networked computer trading systems have been proposed.

An example of a known networked computer trading system is that disclosed in US-A-5285383. This discloses a trading system having a centralised computer database which is used for trading bales of cotton. The system comprises a number of computer terminals which are connected to and can access data stored in the central database. When a bale of cotton is processed, its details are entered onto the database via a computer terminal. Data relating to the bale can be accessed by other users of the system using their own computer terminals. When an individual wishes to purchase a bale of cotton all the relevant details of the available bales are displayed on his computer terminal. An individual can then input a request to purchase the bale of cotton which causes the database to be updated to indicate the change of ownership of that bale. Account details of the users of the system are kept and updated in accordance with the purchase and sale of different bales of cotton.

Another example of a computerised trading network is disclosed in US-A-4677552. This document is concerned with an international commodity exchange in which computer terminals are connected to local exchanges by a central exchange host and the computer terminals can transmit and receive data via that host either to or from computers connected to the host or to or from other networks of computers connected to other exchange hosts. The network can be used to trade commodities which are

defined by a single predefined set of parameters. When bids for commodities are entered into the system other users can retrieve the bid information which is displayed on screen in price order.

5 Disclosure of the invention

In one aspect the present application provides a computerised network trading system which is more flexible than those of the prior art. In one aspect, the present invention provides a networked computer trading
10 system in which enquiries relating to different types of commodity can be easily input and efficiently processed.

In one aspect the present invention provides a networked computer trading system or a server station for use in such a network which enables a user to select a
15 commodity in which he desires to trade and then present the user with an interface specifically adapted for that commodity and, for example, selected from a number of different interfaces stored by the system and each adapted for trading a different commodity. The
20 specifically adapted interfaces may enable a user to enter information particularising features of the commodity desired to be bought or sold.

In one aspect the invention provides a computerised network trading system in which commodities represented
25 by different amounts of data can be traded in a manner which enables the data describing those commodities to be displayed in a manner dependent upon the amount and

type of data used to define a commodity.

In one aspect, the present invention provides an arrangement by which users of a computerised network trading system can be put in contact with one another by submitting an initial query to a central user station which generates output data which enables users fulfilling the criteria of that query to be located and for the different users of the system to be put in contact dependent on the outcome of an initial query.

10 In accordance with one aspect of the present invention there is provided a networked computer trading system comprising a central server station comprising:

means for receiving and transmitting data to and from a plurality of user stations and a mass data storage system; and

15

a plurality of user stations arranged to receive and transmit data to and from said central server station, characterised by said system having stored therein a main input interface for inputting a selection of a type of commodity to be traded and a plurality of commodity interfaces for inputting product details of specific commodities, wherein each of said plurality of commodity interfaces is arranged to enable the input of data relating to a respective different one of a plurality of commodities, said system further comprising means for transmitting in response to a request received from a said user station, said main input interface; and

20

25

means for transmitting a said commodity interface, in response to a request received from a said user station using said main input interface.

In accordance with one aspect of the present invention there is provided a central server station for use in a networked computer trading system comprising:

means for receiving and transmitting data to and from a plurality of user stations; and

a mass data storage system;

characterised by:

said mass data storage system having stored therein a main input interface for inputting a selection of a type of commodity to be traded and a plurality of commodity interfaces for inputting product details of specific commodities, wherein each of said plurality of commodity interfaces is arranged to enable the input of data relating to a respective different one of a plurality of commodities;

means for transmitting in response to a request received from a said user station, said main input interface; and

means for transmitting a said commodity interface, in response to a request received from a said user station using said main input interface.

In accordance with a further aspect of the present invention there is provided a central server station for use in a networked computer trading system comprising:

means for receiving and transmitting data to and from a plurality of user stations; and

a mass data storage system;

characterised in that:

5 said mass data storage system has stored therein a main input interface template defining an interface for selecting a type of commodity to be traded and a plurality of commodity interface templates each defining an input interface for inputting product details of
10 specific commodities, wherein each of said plurality of commodity interface templates is arranged to enable input of data relating to a respective different one of the plurality of commodities which can be selected using the main interface defined by the main interface template.

15 In this application the term "template" is used to describe stored data which defines the format of a display. A template therefore includes instructions as to what is to be displayed on a screen and also to the manner in which it is to be displayed on the screen. The
20 template may also include other data which is not directly relevant to displaying information on a screen.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

25 Figure 1 is a schematic diagram of a computer network to which the invention of the present application can be applied.

Figure 2 is a schematic diagram of a central server station of the network shown in Figure 1.

Figure 3 is a memory map of a mass data storage system shown in Figure 2.

5 Figure 4 is a block diagram of data within a product database.

Figure 5 is a block diagram of data within an account database.

10 Figure 6 is a block diagram of programs stored in a memory of the central server station.

Figure 7 is a schematic diagram of a user station.

Figures 8A and 8B show a flow diagram describing the use of a trading system in accordance with a first embodiment of the invention.

15 Figure 9 is an example of a main input interface.

Figure 10 is an example of an input interface for inputting a query to interrogate one of a number of dedicated databases stored in a mass storage system.

Figure 11 is an example of an output display.

20 Figure 12 is a memory map of a mass data storage system of a network trading system in accordance with a second embodiment of the invention.

Figure 13 is a block diagram of the memory of a central server station of a network trading system in accordance with a second embodiment of the invention.

25 Figures 14A & 14B show a flow diagram for describing the use of a trading system in accordance with a second

embodiment of the invention.

Figure 15 is an example of an initial input interface.

Figure 16 is an example of an account entry
5 interface.

Figure 17 is an example of a seller interface.

Figure 18 is an example of an input interface for inputting data into one of the product databases.

Embodiments

10 Figure 1 is a schematic diagram of a computer network to which the invention of the present application can be applied. The computer network shown in Figure 1 comprises a central server station (1) which is connected to a number of user stations (2) via a high band width
15 distribution system (3) such as a LAN (Local Area Network), WAN (Wide Area Network) or telephone network, e.g. the Internet. This arrangement enables the plurality of users at the different user stations to communicate with the central server station (1)
20 simultaneously. The provision of a central server station (1) reduces network traffic as the user stations (2) initially communicate with a single server rather than needing to communicate directly with each other.

Figure 2 is a schematic diagram of the central
25 server station (1) shown in Figure 1. The central server station (1) comprises a central processing unit (10), hereinafter referred to as a CPU, which is connected to

the high band width distribution system (3) via an interface (11). The CPU (10) is also connected to a memory (12) which contains programs for controlling the actions of the CPU (10) and is used for the temporary storage of variables. The CPU (10) is also connected to a mass data storage system (13), a display (14) and an input device (15) such as a keyboard. Also connected to the CPU (10) is a disk drive (17) which is arranged to read data from a disk (18). Data read from the disk (18) is then stored in the memory (12) or the mass data storage system (13). In this way a disk (18) containing instructions to generate the data stored in the mass data storage system (13) and the programs stored in memory (12) can be used to set up the system as will be described in detail hereafter. The disk (18) used could be a magnetic, optical or magneto-optical disk.

Figure 3 is a memory map of the mass data storage system (13) shown in Figure 2. The mass data storage system (13) is arranged to store a plurality of databases (130a-130n), each of the databases (130a-130n) being a database dedicated to one type of commodity which is to be traded on the computer system. Also stored on the mass data storage system are a plurality HTML (Hyper Text Markup Language) scripts defining interface templates (131a-131n) for inputting a query to interrogate a respective one of the databases (130a-130n), and an HTML script (132) defining a main interface template for

inputting an initial query into the system as will be described later. A plurality of HTML scripts defining output templates (133a-133n) for formatting the result of a query to the databases (130a-130n) are also stored
5 in the mass data storage system, as is an account database (134) for storing account data on the users of the trading system.

Figure 4 is a block diagram of data within one of the product databases (130a-130n). Each of the databases
10 (130a-130n) comprises a plurality of records (1000). Each of the records comprises data indicative of an offer which has been entered into the trading system. Each record comprises an identification number (1001), a plurality of product details (1002) which define the
15 product which is on offer, price data (1003) defining the price of the product on offer and supplier ID data (1004) identifying the supplier who is making the offer.

The product details contained within any particular database (130a-130n) are determined by the type of
20 commodity which is to be offered. For example, if the product related to a case of wine, the type of product details stored would relate to wine and the data stored as product details might comprise the following entries:

Year: 1986
25 Region: Latour
and so on.

If the product were to be something like car

insurance, different details would be stored within a record such as the occupation, sex and address of the driver, the make, model and age of the car to be driven and details about the type of cover which is to be requested.

Each of the records within one of the databases (130a-130n) will have the same type of product details (1002). However, records in different databases (130a-130n) will have different types of product details (1002). In this way the data stored defines exactly the commodity on offer, and within each database (130a-130n) only records relating to one type of commodity are stored. The databases (130a-130n) could be implemented by any commercially available relational database program, such as Microsoft Access.

Figure 5 is a block diagram of data within the account database (134) stored in the mass data storage system (13). The database comprises a plurality of account records (2000), one for each of the suppliers which has an offer entered on the trading system. Each record comprises supplier ID data (2001) which is a number which corresponds to the supplier ID data (1004) in the records (1000) entered in the databases (130a-130n) indicative of offers by that supplier, hit data (2002) indicative of the number of times a record of an offer by that supplier is retrieved from the databases (130a-130n), value data (2003) indicative of the

cumulative value of the offers retrieved by that supplier from the databases (130a-130n) and address data (2004-2005) indicative of the network address (2004) and postal address (2005) of that supplier.

5 Figure 6 is a block diagram of the programs stored in the memory (12) of the central server station (1). The programs in the memory (12) comprise a database entry program (120) for controlling the entry of data onto the databases (130a-130n), a database query program (121) for
10 receiving database queries and interrogating the databases (130a-130n) and a database output program (123) for formulating an HTML script from the output templates (133a-133n) and the result of a query of the databases (130a-130n) retrieved by the database query program. The
15 memory (11) also has stored therein an account database entry program (123) for outputting and updating data in the account database (134), and an account data retrieval program (123) for retrieving and outputting data from the account database (134). Also stored in the memory is a
20 data processing program (125) for processing data received from the high band width distribution system (3) via the interface (21). This program is arranged to process data so that it is suitable for use by the database query program (121) and is also arranged to
25 determine, based on data received, which of the HTML scripts stored in the mass data storage system (13) should be the next one transmitted to a user station (2).

After the system is initially set up, data is entered into the central server station (1) using the input device (15) or alternatively data is loaded from a disk (18) via the disk drive (17). The entered data
5 is processed in accordance with the database entry program (120) or the account database program (123), and stored in the databases (130-130n) as a data record (1000) or in the account database (134) as an account record (2000) respectively. The database entry program
10 (120) and the account database program (123) both enable a user to edit data records. In this case, the database entry program (120) or the account database program (122) causes a data record (1000) or account record (2000), which has already been stored in the mass data storage
15 system (13) to be shown on the display (14) and then overwritten by new data entered using the input device (15).

Figure 7 is a schematic diagram of a user station (2) as shown in Figure 1. The user station comprises a
20 central processing unit (20) (hereinafter referred to as a CPU), which is connected to the high bandwidth distribution system (3) via an interface (21) e.g. MODEM. The CPU (20) is also connected to a memory (22) having a browser program stored therein, a display (23), a
25 keyboard (24) and a mouse (25). If the distribution system (3) is provided by the Internet, the browser program could be any of the commercially available

browser programs such as Netscape Navigator or Microsoft Internet Explorer. The CPU (20) is arranged to process data received from the high bandwidth distribution system (3) via the interface (21) in accordance with the browser
5 program stored in the memory (22). The CPU (20) is also arranged to process data received via the keyboard (24) and the mouse (25) in accordance with the browser program and also to cause data to be transmitted via the interface (21) and the high bandwidth distribution system
10 (3) back to the central server station (1).

Figure 8 is a flow diagram for describing the use of the networked trading system of the present embodiment.

When the browser program is first invoked the
15 program causes a connection to be made between the user station (2) and the central server station (1) via the high bandwidth distribution system (3) (S1). When a connection has been made the browser program downloads (S2) the HTML script (132) defining a main interface
20 template for inputting an initial query into the system. The HTML script (132) defining the main interface is then processed by the browser program which causes a main input interface to be displayed (S3) on the display (23).

Figure 9 is an example of a main input interface
25 displayed on the display (23). The main input interface contains a request (500) prompting a user to input the type of commodity he wishes to trade. The user can then

input the type of commodity he wishes to trade using the keyboard (24), in which case the user's choice of commodity is displayed in a window (501) shown on the display (23). Alternatively, a user may select a
5 commodity from a list of commodities (502) using a mouse (25) to direct a pointer (503). When the user has made his choice (S4), he can send his query to the central server station (1). This occurs when the browser program detects that either the return button on the keyboard
10 (24) has been pressed or the mouse (25) has directed the pointer (503) onto a send button (504) displayed on the display (23). The browser program then causes a request to be sent (S5) to the central server station (1) via the interface (21) and the high band width distribution
15 system (3) requesting download of a new HTML script, together with the data which has been entered using the main interface (500-504).

When the request and data are received by the interface (11) of the central server station (1) the data
20 is processed (S6) by the data processing program (125) stored in the memory (12) of the central server station (1). This program generates a request to download the specific HTML script (131a-131n) corresponding to the commodity selected by the user. This template is then
25 downloaded from the central server station (1) via the high band width distribution system (3) and the interface (21) into the memory (22) of the user station (2) (S7).

The browser program then causes the display (23) to show (S8) the input interface corresponding to the template now stored in memory (22).

Figure 10 is an example of such an input interface
5 for inputting a query to interrogate one of the dedicated
databases stored in the mass storage system (13). The
interface comprises a number of windows (600) each for
inputting data relating to a respective different one of
the different categories of product details of the
10 records (1000) stored in the database (130a-130n) for
which the interface is intended. Next to each of the
windows are the names (601) of the categories of the
product details which are to be entered. Also on the
screen are displayed a back button (602) and a send
15 button (603) and a pointer (604).

Tables 1 and 2 are examples of the names (601) of
categories displayed as part of an input interface for
inputting product details for purchasing wines and for
purchasing car insurance, respectively. In this way a
20 user is prompted to enter data relevant to the specific
commodity he wishes to purchase.

17

Table 1

	COUNTRY
	REGION
	YEAR
5	QUALITY
	GRAPE
	COLOUR

Table 2

	MAKE
	MODEL
	YEAR
	TRANSMISSION
	NAME OF DRIVER
15	ADDRESS OF DRIVER
	AGE OF DRIVER
	SEX OF DRIVER
	NO CLAIMS
	ACCIDENTS LAST 5 YEARS

20

The user can enter a database query (S9) by using the mouse (25) to direct the pointer (604) to the category of product detail which is to be entered and then entering the product detail data using the keyboard (24). When the user enters data the browser program causes the data to be displayed in the window (600) adjacent to the category selected. When the user has finished entering data he can use the mouse (25) to move a pointer (604) onto either the back button (603) or the send button (603).

30

If the user selects the back button (602)(S10) a request is sent to the central server station (1) via the interface (21) and the high bandwidth distribution system (3) to download the HTML script corresponding to the main

interface (S2) once again (132) and control continues as if the main interface had been downloaded for the first time.

If the user selects the send button (603) the
5 database query which has been entered via the interface (600-604) is sent (S11) to the central server station (1) via the interface (21) and the high band width distribution system (3) together with a request download an output HTML script.

10 When the central server station (1) receives a database query from a user station (2) via the high bandwidth distribution system (3) and the interface (11), this causes the CPU to invoke the database processing program (125) to process the data into a form suitable
15 for use by the database query program (121). The database query program (121) is then invoked to retrieve from the appropriate database (130a-130n) records which match the database query (S12).

The database output program is then invoked to
20 incorporate records which are retrieved from the database (130a-130n) into the HTML script (133a-133n) for the output template for that database (130a-130n). The network addresses (2004) of the suppliers which have supplier ID data (2001) corresponding to the supplier ID
25 data (1004) of the records (1000) retrieved from the database (130a-130n) are retrieved from the account records (2000) stored in the account data base (134). The

database output program (122) then incorporates links to these network addresses in the output script (S13).

The newly formulated output script is then sent to the user station (2). At the same time, the account database entry program (123) is invoked by the central server station (1) to update the account data (2000) corresponding to those suppliers whose records have been retrieved by the database query program (121) (S14). The account database program (123) increments the hit data (2002) in the record (2000) which has supplier ID data (2001) corresponding to the supplier ID data (1004) in the records (1100) retrieved by the database query program (121). The account database program (123) also causes the value data (2003) in the records (2000) which have supplier ID data (2001) corresponding to the supplier ID data (1004) in the records (1000) retrieved by the database query program, to be incremented by the amount of the price data (1003) in the records (1000) retrieved. In this way the hit data (2002) is updated to reflect the number of times a supplier's records are retrieved from the system and the value data (2003) is updated to reflect the value of the offers retrieved for that supplier.

When the output script has been sent to the user station (2), it is then displayed (S15) on the display (23).

An example of an output display is shown in figure

11. At the top of the display details of the query sent by the user (700) are shown. The display also has a window (701) showing the names of a number of suppliers and the price at which they offer the commodity defined
5 by the user's query. The entries in the list are displayed in price order. At the bottom of the screen are a send button (702) and a back button (703).

The user can select any of the offers displayed by using the keyboard (24) or the mouse (25) to move a
10 pointer (704). If an offer is selected (S16), this causes the browser program to display the selected offer in a window (705). If the user then selects the send button (702), the browser program invokes the link to the network address of that supplier to cause a request to
15 download the web page corresponding to that supplier to be sent to the web site of that supplier. In this way the user can be put in contact with the supplier which provides him with the best offer (S17).

If the user selects the back button (703) using the
20 keyboard (24) or the mouse (25), a request is sent to the central server station (1) via the high band width distribution system (3) to download the previous database query interface (S7) and control continues as if the interface had been downloaded for the first time.

25 The above described embodiment, therefore, provides a simple and efficient way in which a user can determine which of a number of suppliers of a particular product

can offer that product at an acceptable price. The system also enables a user to select suppliers of different products from a single entry point whilst providing the user with an appropriate interface for inputting details relating to specific products. The use of the system can be monitored at any time by retrieving the account data for each supplier using the account retrieval program (123) and a supplier can be billed appropriately in relation to the number of times his records are retrieved and the value of the offers which have been shown to individuals using the system, as indicated by the hit data (2002) and the value data (2003) respectively. The postal address (2005) indicates where such bills should be sent and provides a record of the suppliers using the system.

A second embodiment of the present invention will now be described. In the first embodiment data records stored in the product databases (130a-130n) and account records stored in the account database (134) were both entered into the mass storage system (13) using an input device (15) of the central server station (1). In this embodiment, data records (1000) and account records (2000) can be entered remotely from a user station (2). In this way, users of the system can enter their own offers of products which are then made available to the other users of the system in the manner which has previously been described.

Figure 12 is a memory map of the mass data storage system (13) in accordance with this embodiment of the invention. Elements of the memory map of the mass data storage system (13), which have previously been described in relation to the first embodiment, are indicated by the same reference numerals and will not be described again.

In addition to the plurality of databases (a-130n) and the plurality of HTML scripts (131a-131n, 132, 133a-133n) and the account database (134) stored in the mass data storage system (13) which have previously been described in relation to the first embodiment, the mass storage system (13) also has stored therein an HTML script corresponding to an initial interface template (135), an account entry interface template (135) for defining an interface for entering data into the account database (134), an HTML script (137) corresponding to a sell template defining an input interface for selecting which commodity a user wishes to sell, and a plurality of input interface templates (138a-138n) defining input interfaces for inputting entries into the product databases (130a-130n).

Figure 13 is a block diagram of the memory (12) of the central server station (1) in this embodiment. The memory (12) has stored therein programs corresponding to the programs (120-125) previously described in relation to the first embodiment, which are indicated by the same reference numerals, and description of these programs

will not be repeated here. In addition to the programs already described (120-125), the memory (12) has additionally stored therein a remote input program (126) for processing data received from user stations (2) via the interface (11) and the high band width distribution system (3) for use by the database entry program (120) and the account entry program (123) as will be described in detail later.

Figure 14 is a flow diagram describing the use of the network trading system of the present embodiment.

When the browser program is first evoked, the program causes a connection to be made between the user station (2) and the central server station (1) via the high band width distribution system (3) (S20). When a connection has been made the browser program downloads (S21) the HTML script defining an initial interface (135). The HTML script (135) defining the initial interface is then processed by the browser program which causes an initial interface to be displayed (S22) on the display (23) of the user station (2).

Figure 15 is an example of an initial input interface displayed on the display (23) of a user station in accordance with the present embodiment. The initial (2) interface comprises a welcome message (800) welcoming the user to the networked trading system and prompting a user to decide whether he wishes to buy or sell using the networked trading system. On the lower half of the

screen there is a buy button (801), a sell button (802) and a pointer (803). The user can choose whether to buy or sell using the networked trading system by moving the mouse (25) to cause the pointer (803) to point to the buy
5 button (801) or the sell button (802) and clicking the mouse (25) or, alternatively, by using the keyboard (24). In this way, a user can select whether to buy or sell using the network trading platform (S23).

When a user has made his choice, depending upon
10 which button (801,802) has been selected, a request to download either the account entry interface template (136) or the main interface template (132) is sent to the server station (1) (S24).

When the request is received by the central server
15 station (1), if it is a request to download the main interface template (132), the flow of control continues in the same manner as has previously been described in relation to the first embodiment (S2-S17) which will not be repeated here.

20 If a request to download the account entry interface (136) is received by the central server station (1), the browser program downloads (S25) the HTML script (136) defining an account entry interface for inputting account data into the account database (134) (S25). The HTML
25 script (136) defining the account entry interface is then processed by the browser program which causes an account entry interface to be displayed (S26) on the display

(23).

Figure 16 is an example of an account entry interface displayed on the display (23). The interface comprises a list of details (900) which the user can enter and a plurality of windows (901-903) for displaying the details as they are entered. The windows (901-903) correspond to windows for entering data representative of supplier ID data (901), postal address data (902) and web address data (903). In the lower half of the display there is shown a send button (904) and a pointer (905).

The user can then enter data (S27) by using the mouse (25) which causes the pointer (905) to move to one of the windows (901-903). When the user enters data using the keyboard (24) the data is displayed in the window (901-905) which is currently selected. When the user has finished entering data via the keyboard (24) he can move the mouse (25) to cause the pointer (905) to select the send button (904).

If the user selects the send button, the browser program sends (S28) the data which has been entered via the interface (900-905) to the central server station (1) via the interface (21) and the high band width distribution system (3), together with a request to download the sell template (137) stored in the mass data storage system (13).

When the data is received by the central server station (1) this causes the remote input program (126)

to be invoked which transforms the data into a request suitable for use by the account retrieval program (124). The account database (134) is then checked to see if the record already exists corresponding to this particular user. In this way, if the user has already registered with the networked trading system, the user need only enter some of the data into the windows (901-903). If no records exist in the account database (134) which match the data entered by the user, the remote input program (126) then causes the account entry program to create a new account record (2000) incorporating the data which has just been entered (S29). In these circumstances, the remote input program will generate supplier ID data for that user. The retrieved or generated supplier ID data (2001) is then incorporated into the HTML script stored as a seller template (137) which is then downloaded by the user station (1) (S30).

When the user station (2) has received the HTML script for the sell template (136), the browser program stored the supplier ID data (2001) in memory and then causes a seller interface to be displayed (S31) on the display (23).

An example of a seller interface is shown in figure 17. The seller interface contains a request (1100) prompting a user to input the type of commodity he wishes to sell and also informing the user of his supplier ID data (2001). The user inputs the type of commodity he

wishes to sell using the keyboard (24), or alternatively the user by selecting a commodity from a list of commodities (1100). When the user has made his choice (S32) the selected data is displayed in a window (1001).

5 The user can then submit his choice to the central server station (1). This occurs when the browser program detects that either the return button on the keyboard (24) has been pressed or the mouse (25) has directed a pointer (1103) onto a send button (1104) shown on the

10 display (23). The browser then causes a request to be sent (S33) to the central server station (1) via the interface (21) and the high band width distribution system (3) requesting to download a new HTML script, together with data representative of the user's

15 selection.

When the request and data are received by the interface (11) of the central server station (1), the data is processed by the data processing program (125) stored in the memory (12) of the central server station

20 (1). This program transforms the request into a request download a specific HTML script (138a-138n) from the database of HTML scripts defining interface templates for inputting details onto the product databases (130a-130n). The input template corresponding to the type of commodity

25 the user has indicated he wishes to sell is then downloaded by the user station (2) (S34). The browser then causes the display (23) to show (S35) the input

interface corresponding to the template now stored in memory (22).

Figure 18 is an example of an input interface for inputting data onto one of the product databases (130a-
5 130n). The interface comprises a plurality of windows (1200) for inputting data relating to the different product details defining the product on sale. The interface also has a window (1201) for inputting price data. Next to each of the windows for inputting product
10 details (1200) is a description of the category of product detail which is to be entered in that window (1202). Next to the window for inputting price data (1201) is a message indicating that price data should be entered in that window (1203). Also on the screen are
15 displayed a back button (1204), a send button (1205), and end button (1206) and a pointer (1207).

The user can enter data (S36) which is to be stored in a product database (130a-130n) by selecting one of the windows using the mouse (25) to direct the pointer (1206)
20 to one of the windows (1201-1202) typing in the product details using the keyboard (24). When the browser program detects that data is being entered, it causes the data to be displayed in the respective window (1200-1201). When the user has finished entering data he can
25 use the mouse (25) to move a pointer (1207) onto either the back button (1204) or the send button (1205), or the end button (1206).

If the user selects the back button (1204) a request is sent to the central server station (1) via the interface (21) and the high band width distribution system (3) to download (S30) the HTML script
5 corresponding to the sell template (137) once again and continues as if the sell template had been downloaded for the first time.

If the user selects the send button (1205) the product details and price data which have been entered
10 via the interface (1200-1206), then sent (S37) to the central server station (1) via the interface (21) and the high band width distribution system (3), together with the supplier ID data previously stored in memory (22). When the data is received by the central server station
15 (1), remote input program (126) is invoked which processes the data into a form which is suitable for use by the database entry program (120). The database entry program (120) then creates and edits records (S38) stored in the database (130a-130n) in accordance with the
20 data received from the user station (2).

After a selection of data has been sent to the central server station, the user can amend the product details (1200) and price data (1201) to create a new selection of data which can be sent to the central server
25 station (1). In this way a number of records (1000) in the database can be amended or created.

When the user has finished entering data he can move

the pointer (1207) onto the end button (1206). When the browser program detects that this has happened, the program comes to an end.

Although the previous embodiments have been
5 described in which a user is put in direct contact with a supplier and the number of times a supplier's network address is incorporated into HTML scripts downloaded by users is monitored, it will be appreciated that the network trading system could instead generate orders for
10 the products requested and send those orders to the suppliers without the users themselves ever being placed in direct contact with the supplier.

Although in the previous embodiments reference has been made to the storage and retrieval of HTML scripts
15 defining interface templates and output templates, it will be appreciated that any data which defines the layout of a display could be used.

Although the previous embodiments have been described in which a plurality of databases (130a-130n)
20 are stored in the mass data storage system (13), each of the databases being dedicated to a specific type of commodity, it will be appreciated that all the records (1000) could be stored in a single database with the product details which are not relevant for certain types
25 of commodity being left blank in the records concerning those commodities.

Although, in the previous embodiments, the databases

have been described as stored on a single mass data storage system (13), it will be appreciated that the databases (130a-130n) could be present at different locations and the network trading system could send
5 queries interrogating a particular database to wherever the database was located.

CLAIMS:

1. A networked computer trading system comprising a central server station comprising:

5 means for receiving and transmitting data to and from a plurality of user stations and a data storage system; and

a plurality of user stations arranged to receive and transmit data to and from said central server station,

10 characterised by said system having stored therein a main input interface for inputting a selection of a type of commodity to be traded and a plurality of commodity interfaces for inputting product details of specific commodities, wherein each of said plurality of
15 commodity interfaces is arranged to enable the input of data relating to a respective different one of a plurality of commodities,

said system further comprising:

means for transmitting, in response to a request
20 received from a said user station, said main input interface; and

means for transmitting one of said commodity interface, in response to a request received from a said user station using said main input interface.

25

2. A central server station for use in a networked computer trading system comprising:

means for receiving and transmitting data to and from a plurality of user stations; and

a data storage system;

characterised by:

5 said data storage system having stored therein a main input interface for inputting a selection of a type of commodity to be traded and a plurality of commodity interfaces for inputting product details of specific commodities, wherein each of said plurality of commodity
10 interfaces is arranged to enable the input of data relating to a respective different one of a plurality of commodities;

means for transmitting, in response to a request received from a said user station, said main input
15 interface; and

means for transmitting one of said commodity interfaces, in response to a request received from a said user station using said main input interface.

20 3. A system in accordance with claim 1 or 2, wherein said data storage system is arranged to store a database of commodities, each of said plurality of commodity interfaces defines a respective different input interface for inputting a query to interrogate said database, and
25 said means for receiving and transmitting data is arranged to transmit to a user station data based on the results of an interrogation of said database.

4. A system in accordance with claim 3, wherein said data storage system has stored therein a database of commodities.

5 5. A system in accordance with claim 3 or 4, wherein said database comprises a plurality of databases, each arranged to contain records relating to a respective different one of said plurality of commodities which can be selected using the main interface, wherein each of
10 said plurality of commodity interfaces defines a specific input interface for interrogating a respective different one of said plurality of databases.

6. A system in accordance with claim 3, 4 or 5, wherein
15 said data storage system has stored therein a plurality of output formats for outputting the results of an interrogation of said database, and said apparatus further comprises means for supplying output data to a user station using one of said plurality of output
20 templates and the results of interrogating said database.

7. A system in accordance with claim 6, wherein said data storage system has stored therein linking data representative of instructions for linking a user station
25 to a second user station, wherein said means for supplying output data is arranged to incorporate said linking data in said output data in accordance with the

results of an interrogation of said database.

8. A system in accordance with any of claims 3-7,
further comprising means for recording the number of
5 times individual records are retrieved from said
database.

9. A system according to claim 8, wherein said database
includes data representative of the value of products
10 stored therein, wherein said means for recording a number
of times entries are retrieved from said database is
arranged to record the accumulative value of the records
retrieved.

15 10. A system in accordance with claim 8 or 9, further
comprising output means for outputting said recorded
data.

11. A system in accordance with any of claims 3-10,
20 wherein said means for receiving and transmitting data
to and from a plurality of user stations is arranged to
receive data representative of records which are to be
stored in said database.

25 12. A system according to any of claims 3-11, further
comprising input means for inputting data for storage in
said database.

13. A network computer trading system comprising a central server station in accordance with any of claims 2-12 when dependent directly or indirectly upon claim 2 and a plurality of user stations, wherein said plurality
5 of user stations are arranged to receive and transmit data to and from said central server station.

14. A central server station for use in a networked computer trading system comprising:

10 means for receiving and transmitting data to and from a plurality of user stations; and

a data storage system;

characterised in that:

said data storage system has stored therein a main
15 input interface template defining an interface for selecting a type of commodity to be traded and a plurality of commodity interface templates each defining an input interface for inputting product details of specific commodities, wherein each of said plurality of
20 commodity interface templates is arranged to enable input of data relating to a respective different one of the plurality of commodities which can be selected using the main interface defined by the main interface template.

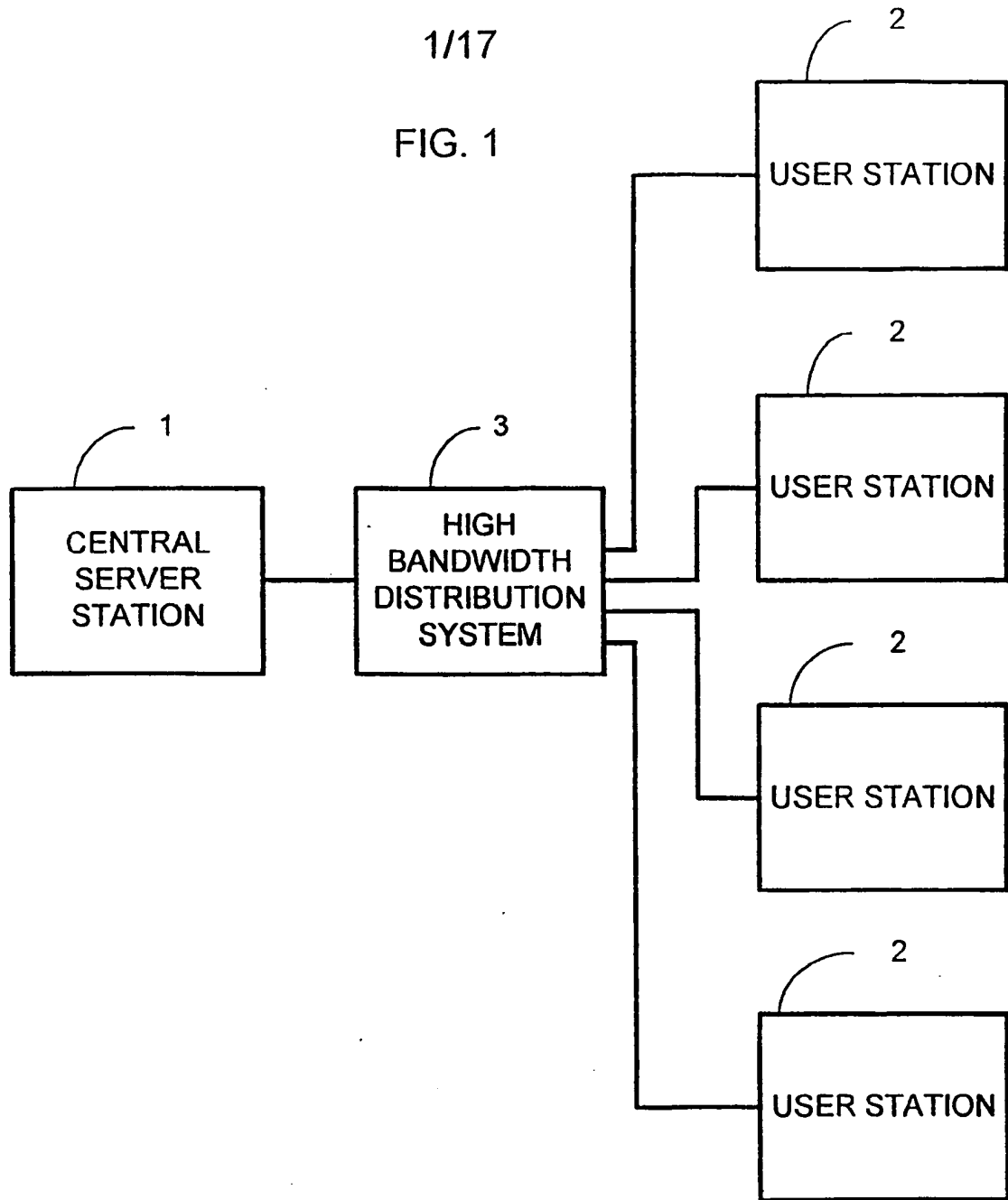
25 15. A storage medium having stored therein instructions for generating in a computer a main input interface template defining an interface for selecting a type of

commodity to be traded and a plurality of commodity interface templates each defining an input interface for inputting product details of specific commodities, wherein each of said plurality of commodity interface

5 templates is arranged to enable input of data relating to a respective different one of the plurality of commodities which can be selected using the main interface defined by the main interface template.

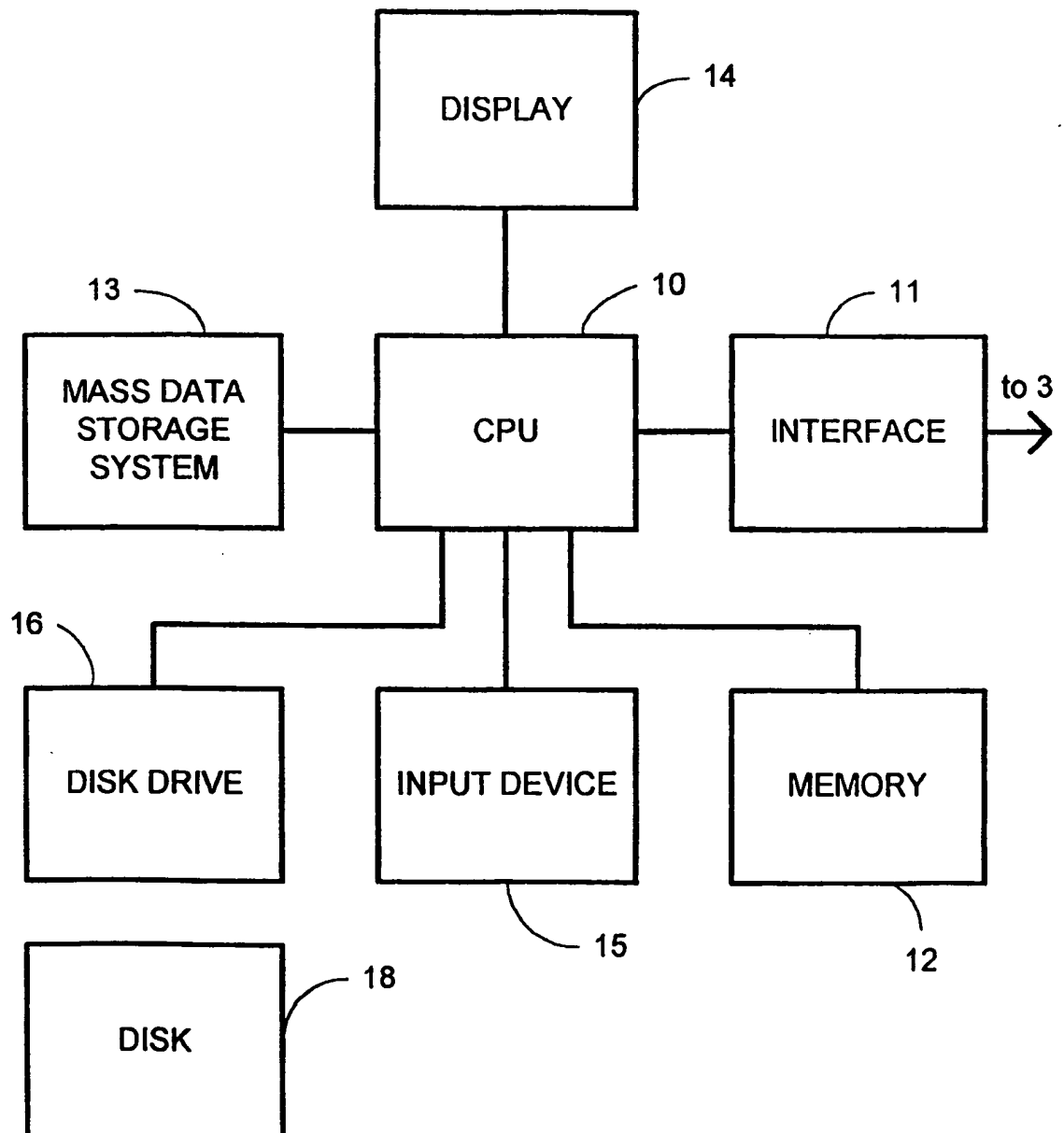
1/17

FIG. 1



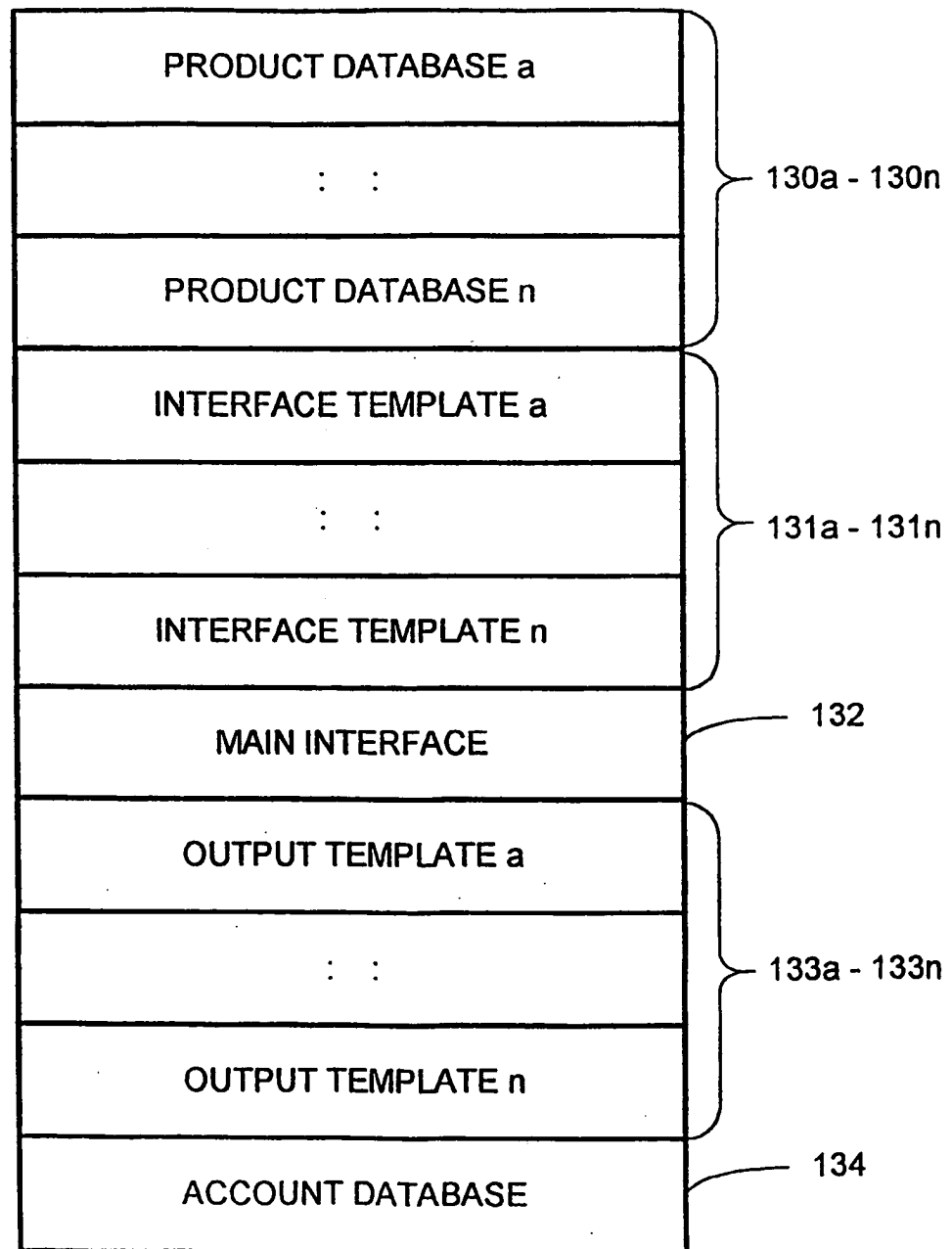
2/17

FIG. 2



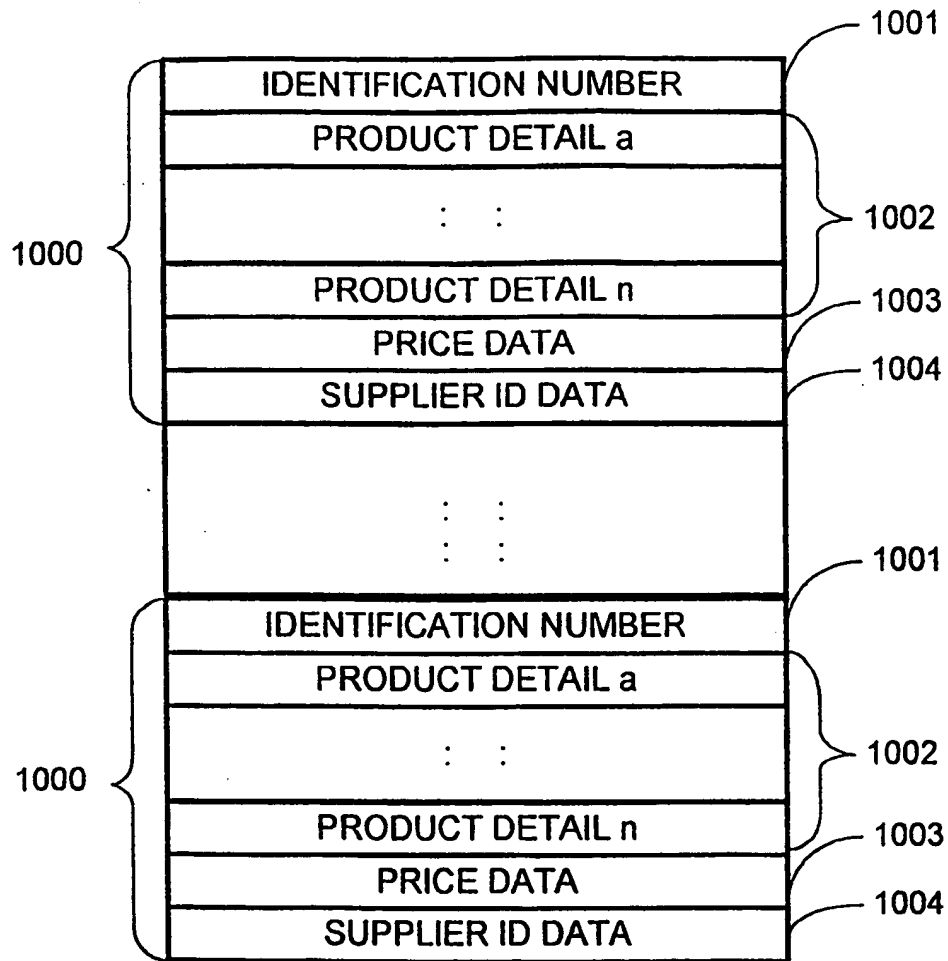
3/17

FIG.3



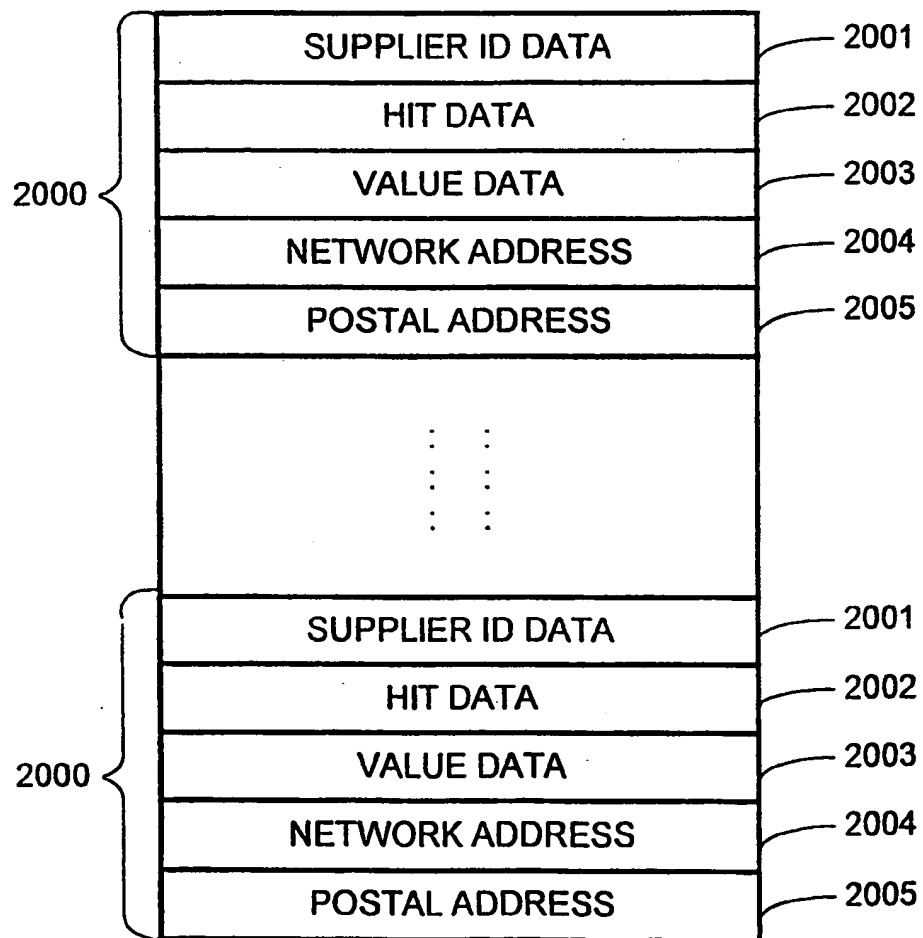
4/17

FIG.4



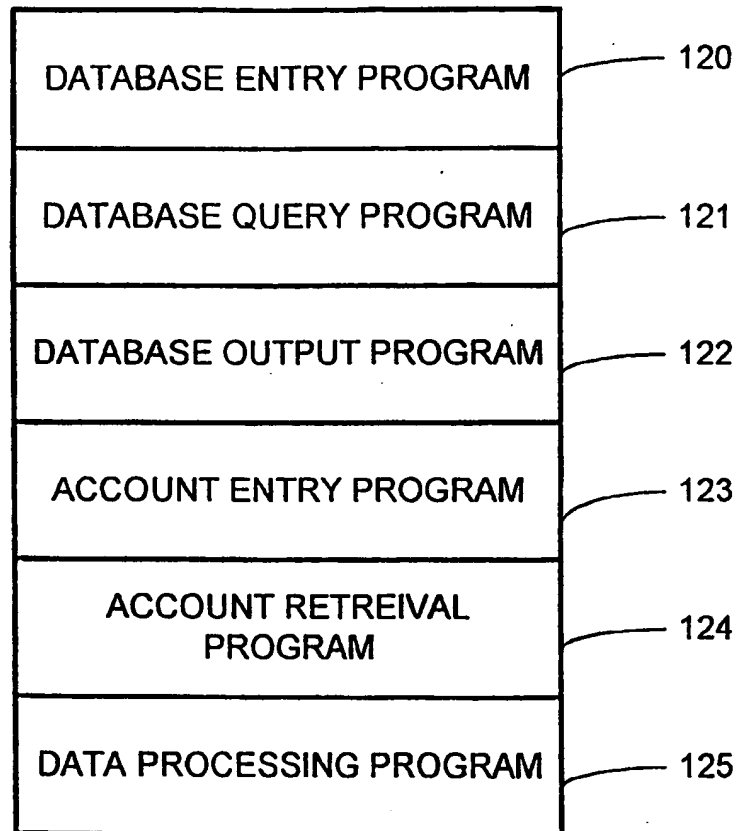
5/17

FIG.5



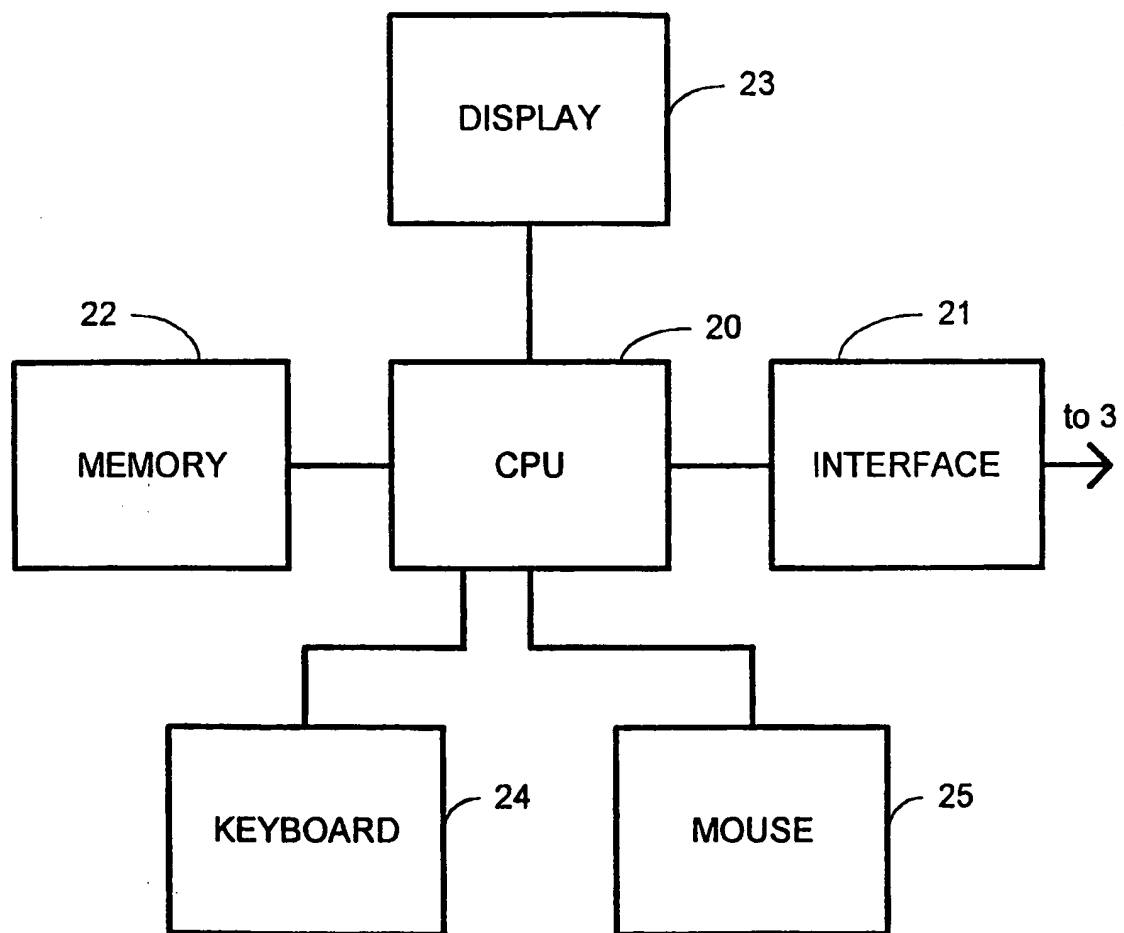
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FIG. 6



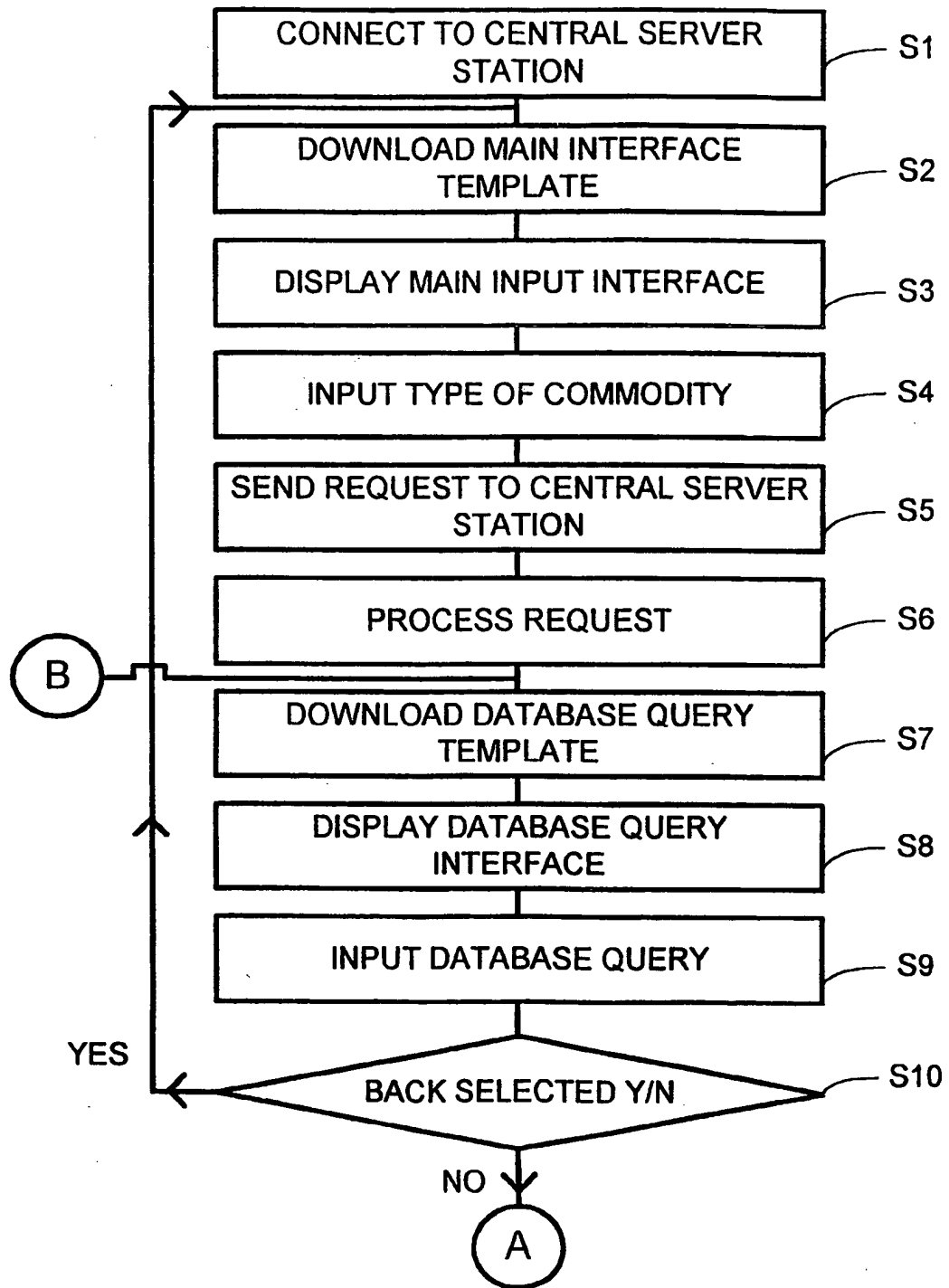
7/17

FIG. 7



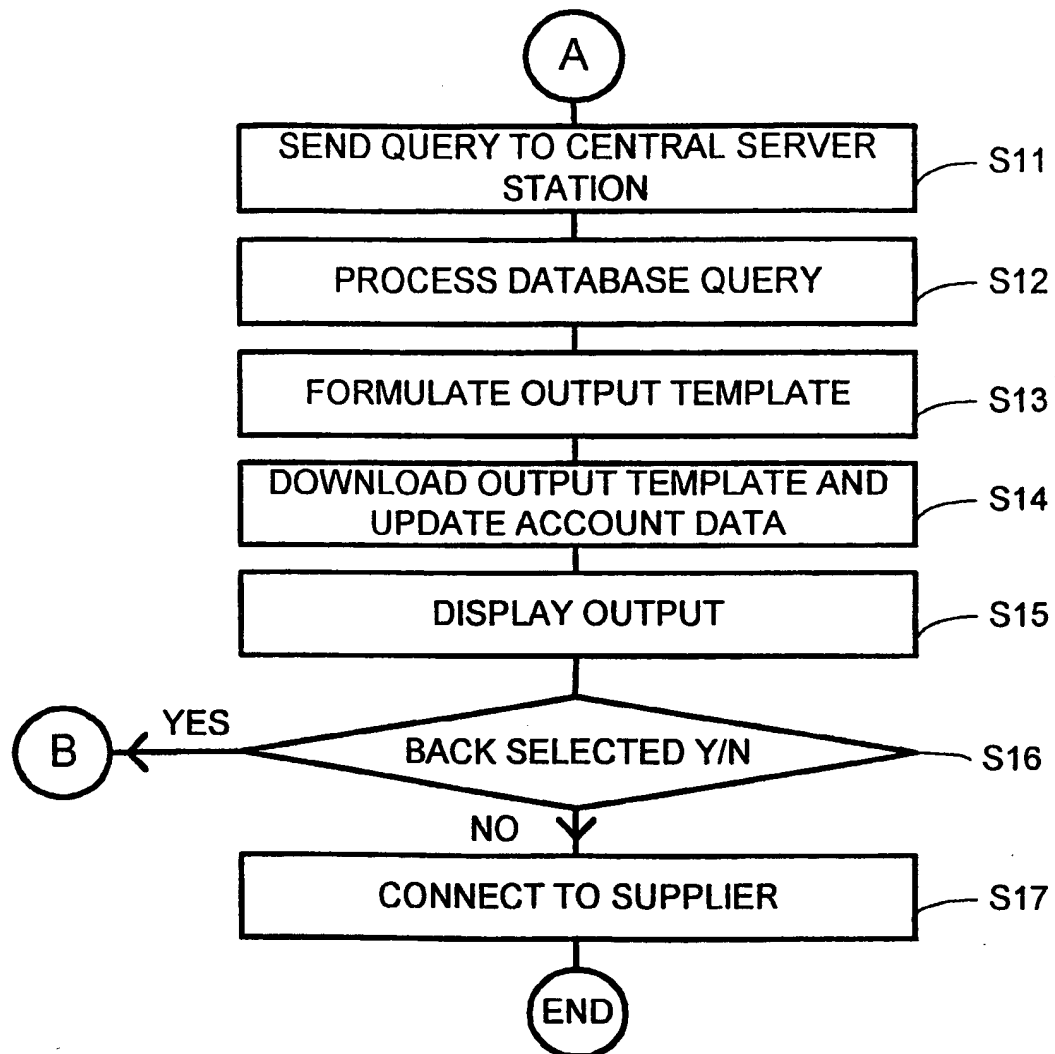
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FIG.8A



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FIG.8B



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FIG.9

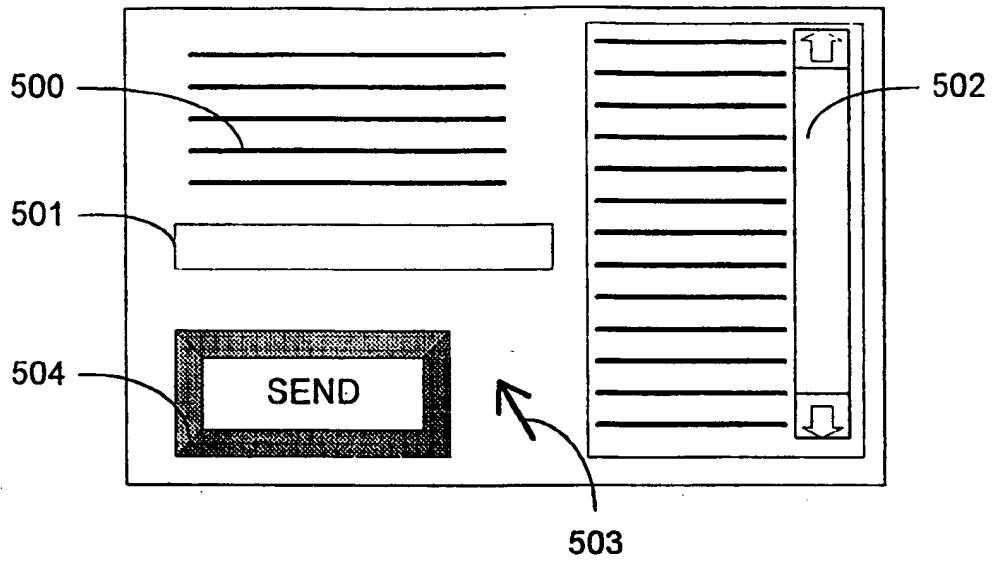
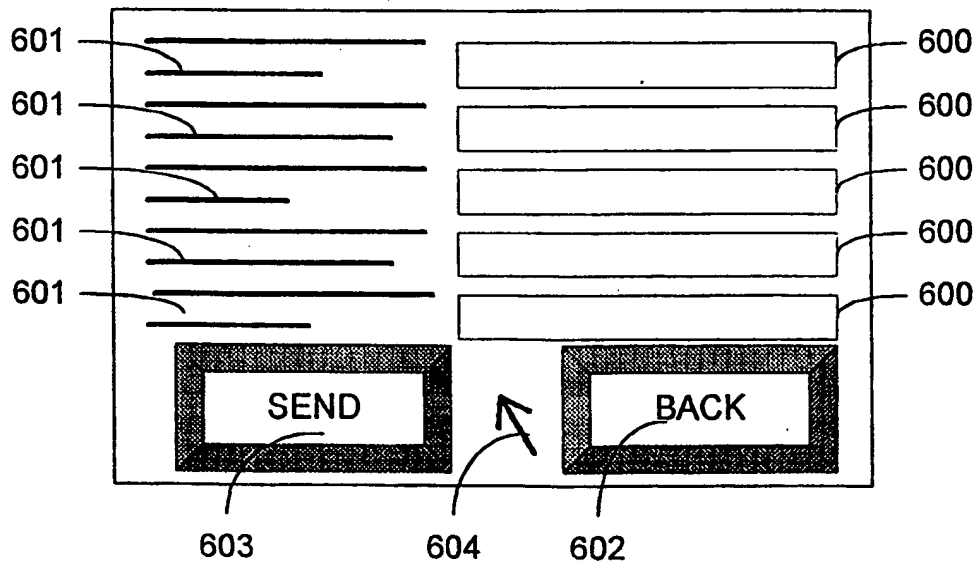
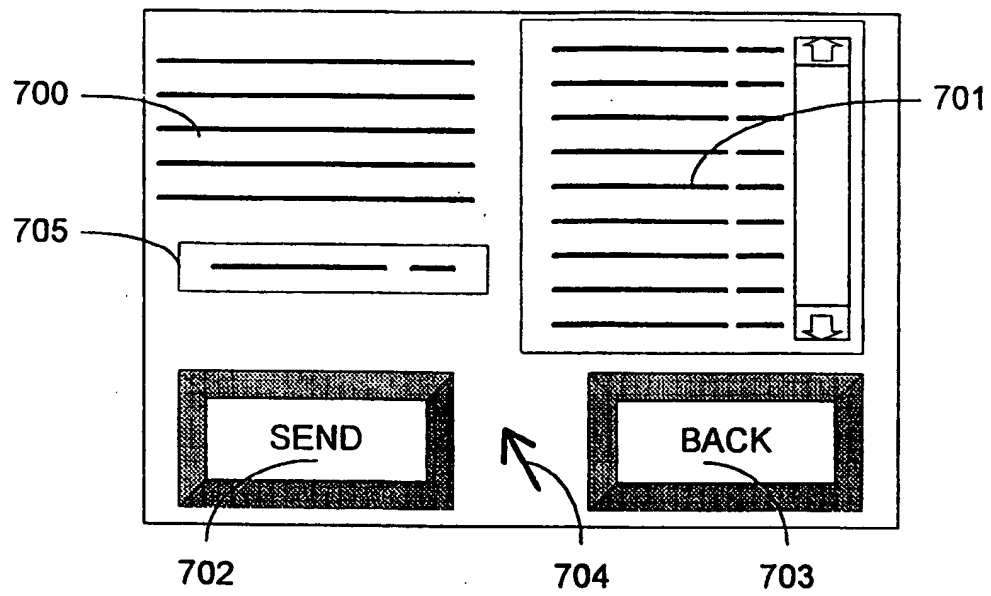


FIG.10



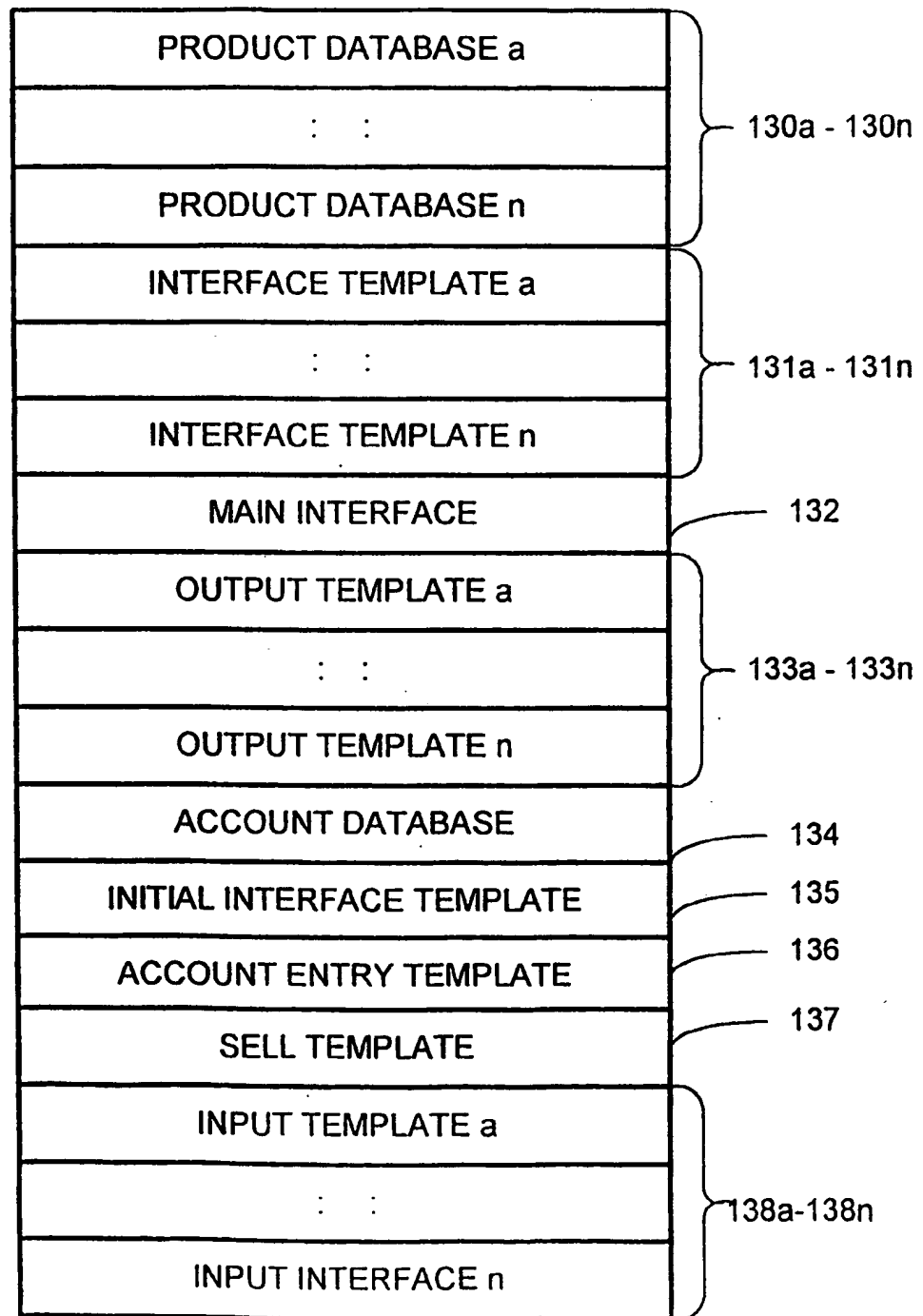
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FIG.11



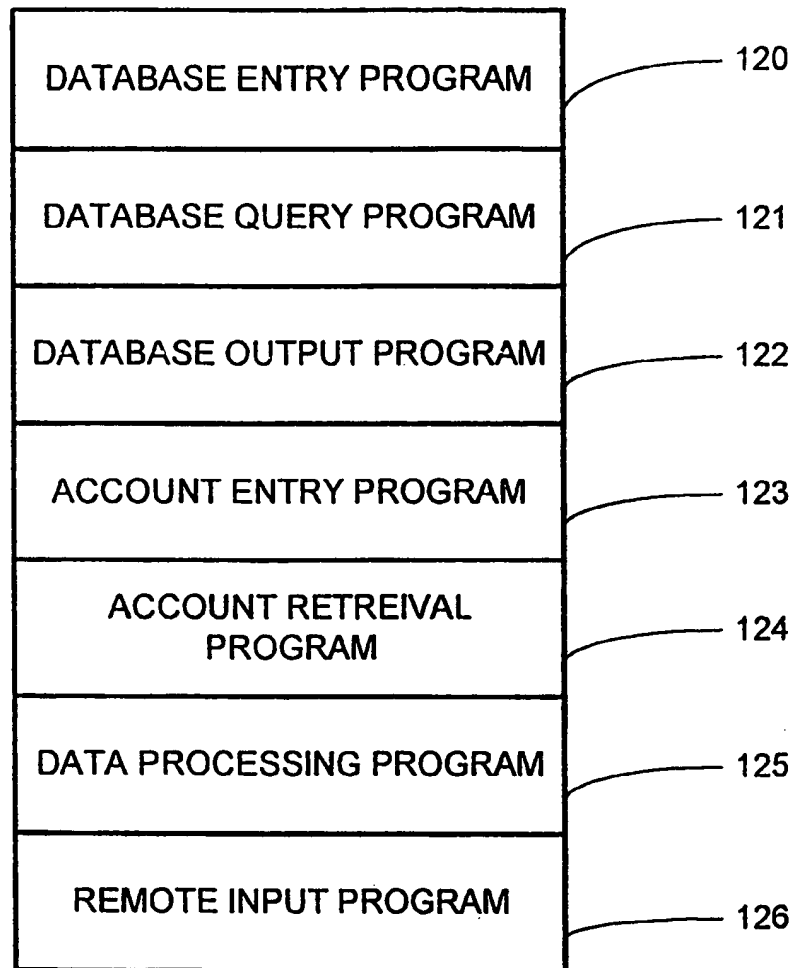
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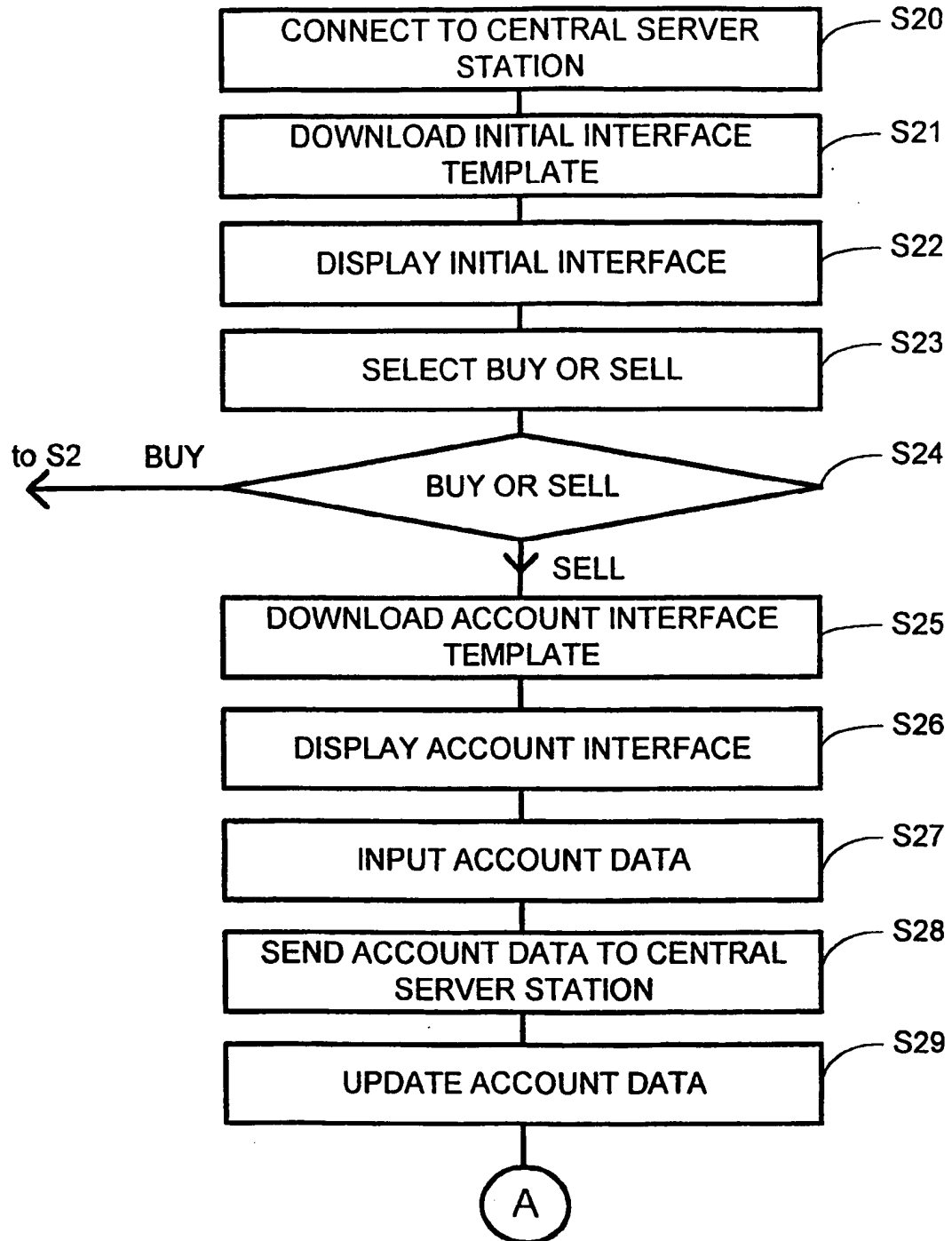
FIG.12

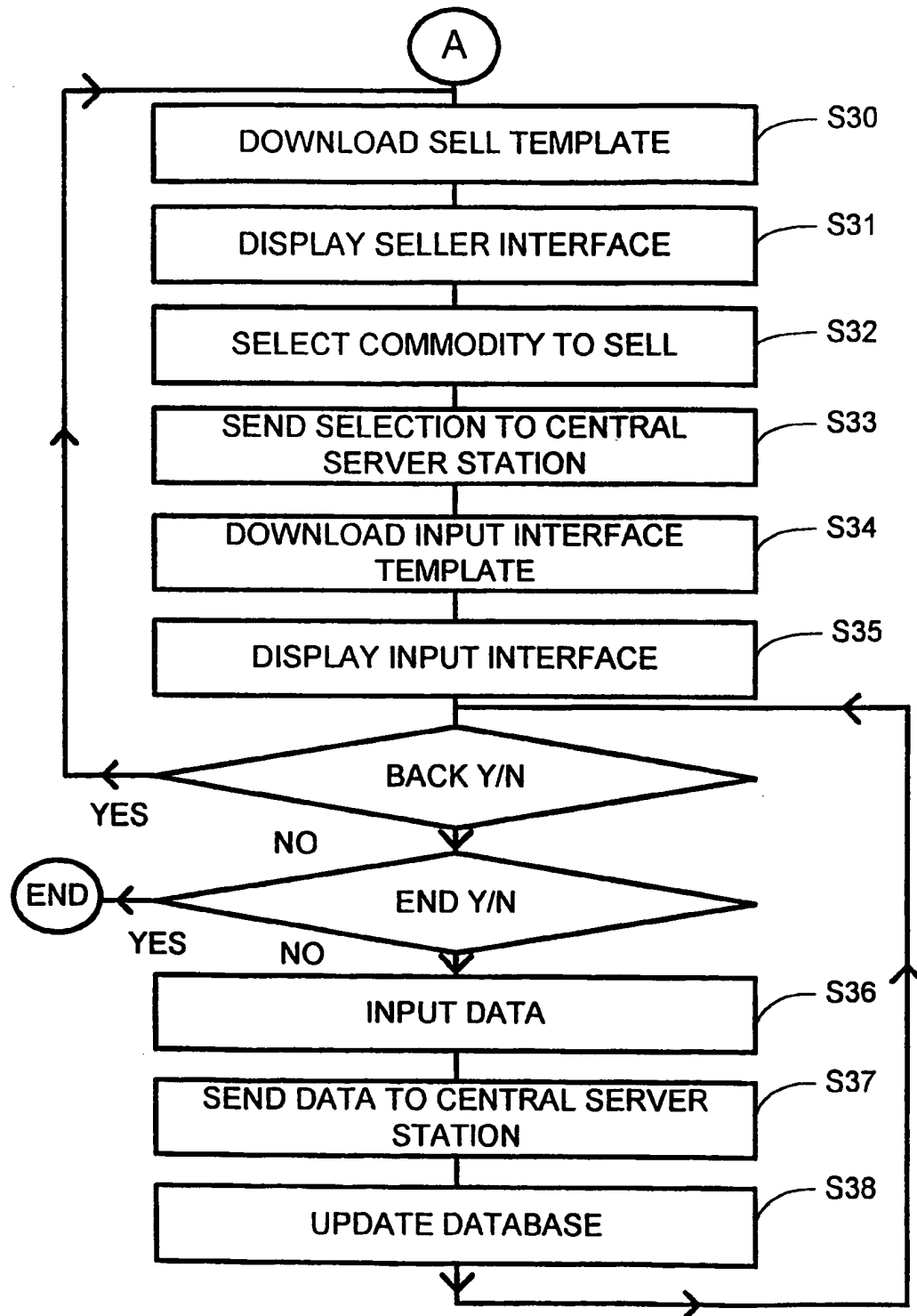


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FIG. 13



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FIG. 14A

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FIG. 14B

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FIG.15

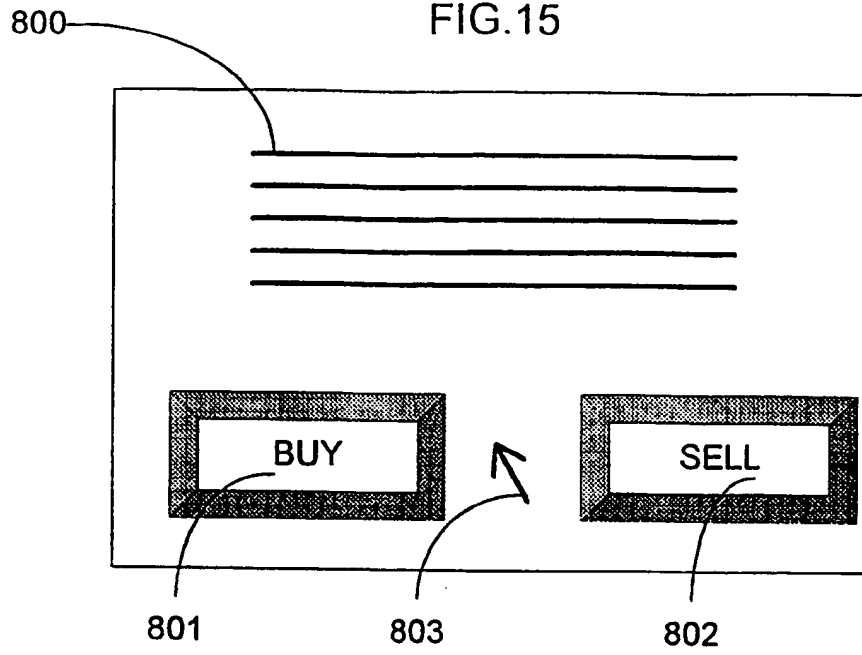
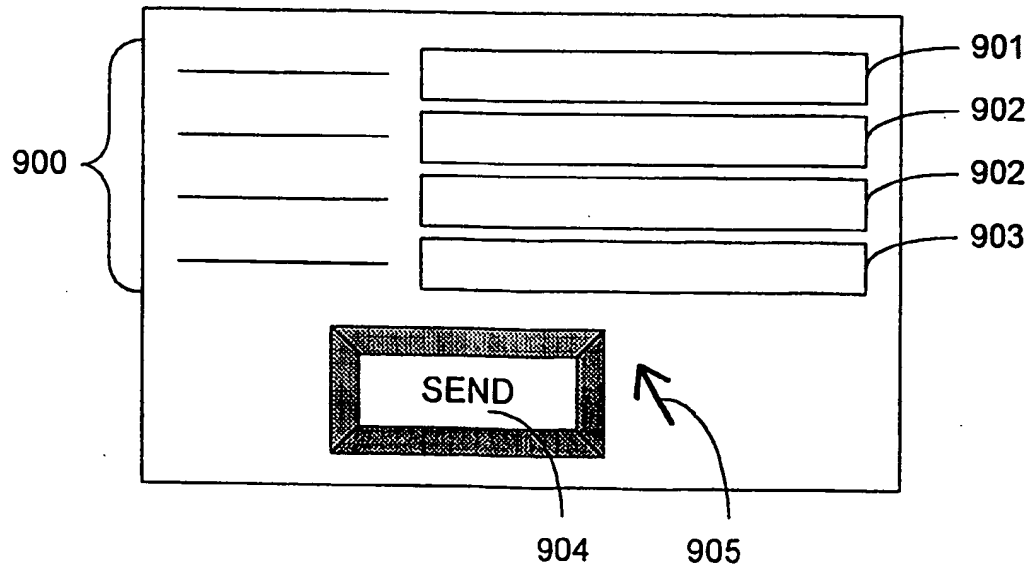


FIG.16



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FIG.17

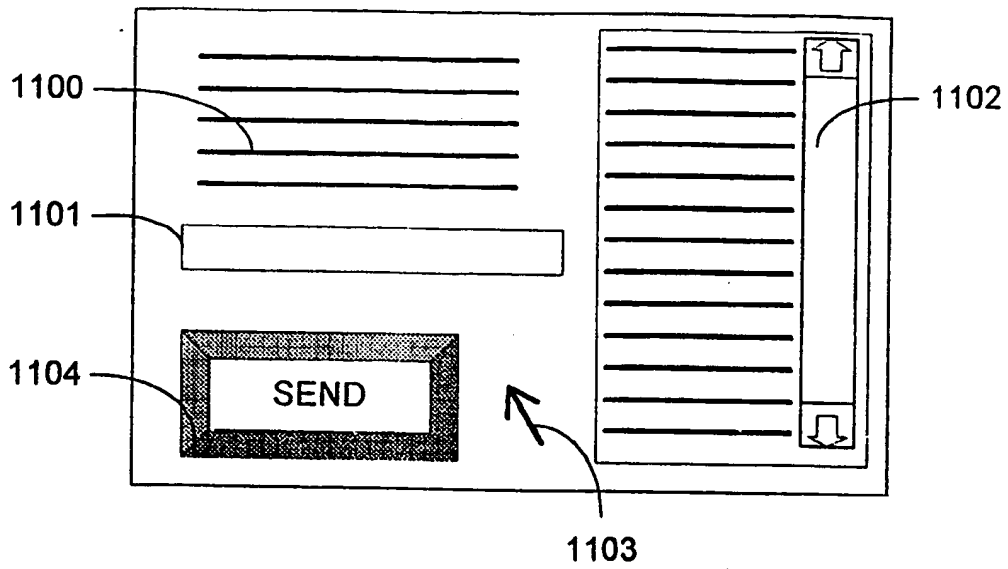
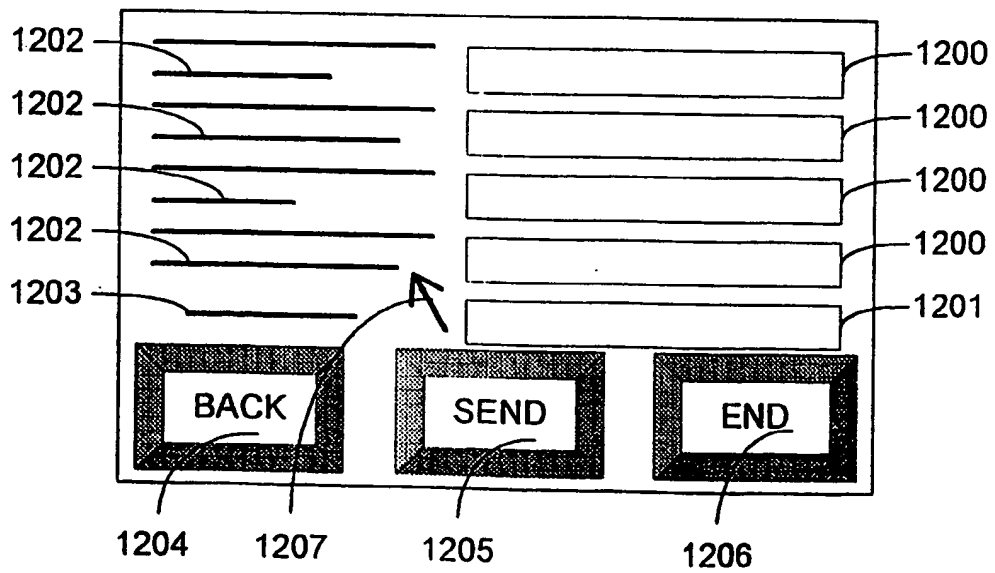


FIG.18



INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/01240

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 592 375 A (SALMON BARDWELL C ET AL) 7 January 1997 see column 1, line 25 - line 38 see column 2, line 15 - line 24 see column 14, line 2 - column 15, line 21	1,2,14, 15
A	US 5 592 378 A (CAMERON PAUL S ET AL) 7 January 1997 see abstract; claim 1 see column 13, line 41 - column 18, line 8; figures 17-26	1,2,14, 15
A	EP 0 706 124 A (SONY TRANS COM INC) 10 April 1996 see abstract; claim 1	1,2,14, 15

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

12 August 1998

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. l. Application No

PCT/GB 98/01240

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5592375	A	07-01-1997	AU 1996695 A WO 9524687 A	25-09-1995 14-09-1995
US 5592378	A	07-01-1997	NONE	
EP 0706124	A	10-04-1996	US 5675752 A JP 8194608 A	07-10-1997 30-07-1996